The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 715.---Vol. XIX.] LONDON, SATURDAY, MAY 5, 1849. [Price 6d.

MINE MATERIALS FOR SALE, AT WHEAL VIRGIN MINE, NEAR GOLDSITHNEY

TO BE SOLD, BY PUBLIC AUCTION, on Tuesday, the 8th of May, 1849, by Twelve o'clock precisely, at WHEAL VIRGIN MINE, the UNDER-MENTIONED MATERIALS—viz.:

A 30-inch cylinder STEAM-ENGINE, 9 ft. stroke in cylinder, and 8-ft. stroke in shaft.
A 19-inch cylinder STEAM WHIM-ENGINE, with cage and boiler, about 5 tons.

3	Horse-whims		Miner's dial
5	14-inch 9-feet pumps		Whim kibbles
1	14-inch 8-feet windbore		Whim chain
97	11-inch 9-feet pumps		Several 10-inch brass buckets and prongs
1	11-inch 9-feet windbore		Brass and iron weights
1	10-inch 12-feet working barrel		Large ore beam and scales
1	11-inch 4-feet matching-piece		Double and treble brass and iron blocks
4	12-inch 9-feet pumps		30 to 40 gallons rape oil
1	12-inch 6-feet windbore		A quantity of brick
1	12-inch 9-feet plunger-pole		Old wrought and cast-iron
1	13-inch 7-feet pole case		Junk
1	13-inch 2-feet matching-piece		
1	12-inch stuffing-box and gland		

Also the COUNTING-HOUSE FURNITURE, eight-day clock, &c.
Dated April 24, 1849.

MINING PROPERTY FOR SALE.—TWO-THIRDS of a most valuable SILVER-LEAD MINE, near the celebrated Old Treburget Mine, ST. TEATH, Cornwall.

THREE-FOURTHS of a LEAD MINE, near DOLGELLY, Merionethshire. Also, a compact SLATE QUARRY, suitable for an £8000 capital. The metal is of first-rate quality; it is situate on the Gaewern Vein, the properties of which are well known in the London market. Also, a ROCK SLATE QUARRY, where slab enough may be raised to supply the whole of Europe.

WHEAL VULCAN—IRON MINE.—TWO-FIFTHS of this mine may be had on very easy terms; it will pay a regular dividend of 15 per cent.

A TIN MINE, adjoining the noted Wheal Trescoll, and having the same lodes, which have been cut, and some excellent work broken; the proprietor undertakes to guarantee to the purchaser to put up an engine, smiths' shop and storehouse, stamping-mill, put down the shaft 20 fathoms, cut the lode, and return tin to market within two months. He will, moreover, take one-third the shares himself.

ONE-QUARTER PART of the COOMBE VALLEY SLATE QUARRY, now making considerable returns.

Specimens of the slate may be seen, and every other information obtained, by applying to Mr. C. S. Richardson, C.E., land and mine surveyor, Whitefriars-street, London.

TO CAPITALISTS AND MINE ADVENTURERS.
EAST WHEAL GEORGE MINE.

This SETT is situated in the parish of WALKHAMPTON, in the county of DEVON—is very extensive, and holds out great promise for mining adventure. One lode has just been discovered, and opened upon to a short distance, 10 feet from surface, where it is from 3 to 4 feet wide, with a leader of copper ore, from 12 to 15 inches big, a sample of which has been assayed by Mr. Harvey, of Tavistock, and found to contain from 13 to 15 per cent. produce. Two other parallel lodes have been discovered, but have not yet been explored; and the property has been inspected by several mining agents, by whom it is considered a speculation worthy of trial.

The present proprietor wishes to be joined by a few gentlemen of capital, with a view of forming a company to work the mine with spirit; and for that purpose, proposes to divide it into 512 shares, of which he is willing to hold a considerable number.

Every further particular may be obtained, and samples of the ore seen, or sent to address, on application (post-paid) to Mr. John Pomeroy, Horrabridge, near Tavistock, Devon.

CORNWALL—TYWARNHAILE MINES.

IMPORTANT AND VALUABLE COPPER MINES TO BE LET, BY PRIVATE CONTRACT, comprising the extensive SETTS formerly KNOWN AS

UNITED HILLS, SOUTH TOWAN, WHEAL CHARLES, and WHEAL FANCY,

belonging to the Duchy of Cornwall, in the parish of SAINT AGNES.—These mines having been surrendered to the Duchy by the late lessees, during the extreme pressure of the latter part of the year 1847, have since been placed in good working order, and are yielding large and increasing returns. They are now to be leased, at a moderate rate of dues, for a term of 21 years.

An arrangement can be made for putting the lessees of the Tywarnhaile Mines in possession of the adjoining setts of Wheal Sparrow, West Wheal Sparrow, Basset's United Hills, Wheal Clarence, and Wheal Lydia, the property of the representatives of the late John Basset, Esq.

Proposals will be received at the Duchy of Cornwall Office, Somerset House; and any further information may be obtained by application there, or to R. Taylor, Esq., Falmouth.

Duchy of Cornwall, Somerset House, Feb. 20, 1849.

JAMES BOYDELL, LAND, MINE, AND MACHINERY VALUER, AND AGENT,
No. 54, THREADNEEDLE-STREET, LONDON,
HAS TO DISPOSE OF

A PATENT RIGHT for BUILDING VESSELS with IRON, on a principle which combines increased strength with greater economy of manufacture.

Also, ONE for the CONSTRUCTION of IRON ROOFS, on a like principle. A specimen of this may be seen as a roof covering one of the retort houses of the Birmingham and Staffordshire Gas Company, by permission of Mr. Clift, the engineer, at the works.

Also, ONE for IRON JOISTS and RAFTERS, and for a plan of joining large plates and sheets of iron.

Also, ONE for the AMALGAMATION of STEEL and IRON—in the progress of the manufacture of the latter, by which a great saving may be effected in the cost of making edged tools.

The LEASE of a very celebrated FOUNDRY and ENGINEERING ESTABLISHMENT, on the River Dee, complete, with fixtures, machinery and tools, in working order, and ready for any parties to embark at once on building first-class iron steam-vessels, and marine and locomotive engines.

The above will be found worthy the attention of any parties desiring to invest money in a profitable business, as they will be disposed of upon terms which will ensure an unusual return to the purchasers of them.

Also, SOME COAL and IRONSTONE MINES, FREESTONE QUARRY, and a large FREEHOLD ESTATE.

Also, STEAM-ENGINES and MACHINERY, of all descriptions, and which he is enabled to offer at very moderate prices.

Particulars of the above may be had, upon application, at 54, Threadneedle-street.

TO ENGINEERS, BUILDERS, AND ARCHITECTS.

JAMES BOYDELL, 54, THREADNEEDLE-STREET, having been a very large manufacturer of machinery and irregular shaped iron, and having accomplished the rolling of some descriptions of the latter, thought by many to have been impracticable, will be happy to ASSIST any ENGINEERS, SHIPBUILDERS, and ARCHITECTS, in the planning of the details of what IRONWORK they may have occasion for, or bringing to perfection any invention in machinery, as well as procuring such materials for the purpose as they may require.

WARRANTED SAFETY FUSE.—W. BRUNTON & CO. beg to inform Mine Agents, Contractors, and Merchants, that having completed their Machinery for the MANUFACTURE of the ABOVE ARTICLE, they are enabled to offer FUSE of a very superior quality, and at considerably reduced prices.

W. B. & Co. can SUPPLY FUSE in ANY LENGTHS that may be required.

Penhellick Fuse Factory, Pool, Truro, Cornwall.

TESTIMONIALS.

We, the undersigned, hereby bear our testimony to the excellence of the Safety Fuse, manufactured by Messrs. Brunton and Co. We have had it in use in our mines; and, after sufficient trial, find it to be fully equal to any Fuse we have ever used:—

Carn Brea Mine.
R. H. Piko, Purser.
John Leuten, James Miners, John Vivian, John James, } Agents.

North Pool Agents.
James Evans.
John Nancarrow.
Frederic Evans.

South Roskear Agents.
John Dunkin.
William Thomas.

Cook's Kitchen Agents.
Joseph Vivian.
Richard Bennetts.

Cook's Kitchen Agents.
John Ivey.
William Hitchens.

North Roskear Agents.
Joseph Vivian.
William Michell.
William Thomas.

Tincroft Agents.
Peter Floyd.
Thomas Stainsby.
Thomas Lean.
Henry Hocken.
Richard Martin.

William Nancarrow.
Alex. Eudey, Joseph Eudey, } *Wheal Agar Agents.*

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1866 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE,

or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use is. each, but to customers gratis.

GRANITE QUARRY TO BE DISPOSED OF, in the SOUTH of CORNWALL, within three miles of the shipping port—lease for ever; dues most reasonable; quality first-rate, and quantity unlimited.—For inspecting samples, and further particulars, apply to Mr. Bartlett, 58, Lombard-street, London.

CUNNINGHAM AND CARTER'S NEW SYSTEM OF RAILWAY PROPULSION.—Railway Directors, Engineers, and the public generally, are invited to examine this system, which may be VIEWED on Mondays, Wednesdays, and Saturdays, from half-past Eleven to Three o'clock, at Ingram's Manufactory, 29, CITY-ROAD, near Finsbury-square.

The following is an estimate of the daily expense of working a double line of 50 miles long, during a period of 10 hours, with trains starting from each terminus every half hour = six trains always running on the line:—

Coals for five stationary engines, of 100-horse power each, at 5 lbs. per horse-power per hour each (say, 11 tons, at 14s. per ton)				£7 14 0
Wages—Enginemen, with relief, 10 at 6s.			£3 0 0	
„ Stokers	ditto	10 at 4s.	2 0 0	
„ Cleaners	ditto	10 at 2s. 6d.	1 5 0	
„ Drivers	ditto	12 at 5s.	3 0 0	
„ Guards	ditto	12 at 5s.	3 0 0	
„ Twenty men stationed on the line, 3s.			3 0 0	=15 5 0
Repairs of engines, with depreciation, &c., at £200 per annum, each ×5=1000*l.* per annum—daily proportion				2 15 0
Contingencies				4 6 0
Total				£30 0 0

Forty trains, at 15s. per train=£30, being a fraction over 3½d. per train per mile, independent of a saving of one-third of the present expense in the maintenance of way.

CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a

NEW PATENT PROCESS,

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.
2. For TIN-PLATES, commonly called COKE-PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire

PATENT TOUGHENED CAST-IRON.—Messrs. GARDEN and MACANDREW beg to call the attention of Architects, Builders, Engineers, Ironfounders, &c., to the ABOVE DESCRIPTION OF IRON (Mr. Morries Stirling's Patent), which, after numerous trials, experimental and practical, is found greatly to exceed all other cast-iron in tensile and transverse strength, as well as in resistance to crushing forces. Several of the most extensive ironmasters have been licensed, and from them, or their brokers, the patent iron can be procured.

Messrs. GARDEN & MACANDREW have always a STOCK of this IRON [illegible] are ready to EXECUTE ORDERS to ANY EXTENT on the shortest notice.

27, Queen-street, Cheapside, April 25, 1849.

RIDER'S RAILWAY BRIDGE.—This BRIDGE, BUILT wholly of IRON, will be ERECTED by the PATENTEE on the following terms:—

A BRIDGE, of 150 span, for a double track railway, broad gauge—Price £2000.
A BRIDGE, of 100 feet span, same dimensions—Price £1000.
These prices are exclusive of abutments or piers.
ROADWAY BRIDGES at a reduction on cost of from one-half to two-thirds.

Apply to Mr. S. MOULTON, Patentee, Bradford, Wilts, or to Mr. Howard Jacobson, Suffolk-lane, Thames-street, London.

STRUVE'S PATENT MINE VENTILATOR.
TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.
No injury to pumps, tubbing, chains, ropes, or pitwork.
Goaves kept clear.
Not influenced by barometrical and thermometrical changes in the atmosphere, or by wind
Current of air undeviating.
LICENSES will be GRANTED on application to
Mr. WILLIAM PRICE STRUVE, C.E., Swansea.

The ventilator has been erected at the Eaglesbush Colliery, near Neath, and is perfectly efficient, and may be viewed on application to the proprietors, Messrs. Penrose and Evans, Neath.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.
THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY
BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

INDURATED AND IMPERVIOUS STONE, CHALK, &c. —AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.

Apply to HUTCHISON & CO.,
East Temple Chambers, London, or Tunbridge Wells, Kent, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c.
LICENCES GRANTED.

SCOTTISH PROVIDENT INSTITUTION—
ESTABLISHED 1837.
INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 1848.
TRUSTEES.
The Right Hon. W. JOHNSTON, of Kirkhill, Lord Provost of the City of Edinburgh.
CHARLES COWAN, Esq., M.P.
WILLIAM CAMPBELL, Esq., of Tillicchewan.
JOHN MASTERMAN, Esq., No. 35, Nicholas-lane.
JAMES PEDDIE, Esq., W.S.

Mutual assurance by very moderate premiums.—Whole profits divided amongst the assured exclusively.—Policies indisputable, unless obtained by fraud.—No entry money.

Annual Premiums per £100, with whole Profits.

Age 20.	Age 25.	Age 30.	Age 35.	Age 40.	Age 45.	Age 50.	Age 55.
£1 15 8	£1 18 0	£2 1 6	£2 6 10	£2 14 9	£3 5 9	£4 1 7	£5 1 11

The Eleventh Annual Report is now ready, and, with tables and every information, may be had on application.
WILLIAM OWEN HARRIS, Secretary.
LONDON OFFICE—No. 12, MOORGATE-STREET.

UNITED GUARANTEE AND LIFE ASSURANCE COMPANY.
Capital £100,000, with power to increase to £500,000.
COMPLETELY REGISTERED.
CHAIRMAN—The Right Hon. Lord ERSKINE.
VICE-CHAIRMAN—JOSHUA P. WESTHEAD, Esq., M.P.
OBJECTS OF THE COMPANY.

1. To grant policies for fidelity of trust, combined with policies of assurance on life, deferred annuities, and endowments.
2. To grant policies for fidelity of trust, independently of policies of assurance on life, &c.
3. To transact life assurance, independently of guarantee business.
4. To grant policies for deferred annuities.
5. To grant policies for endowment of children and others.

The main and distinguishing feature of this company is the union of guarantee for fidelity with assurance on life (including deferred annuities and endowments).

NOTICE.—The directors are now prepared to receive proposals for effecting guarantee and life assurance policies, conjointly or separately.

Forms of proposal, and every information, may be obtained at the offices of the company, No. 36*, Old Jewry, London. J. KNIGHT, Secretary.

WANTED, by a Gentleman who has an AGENCY for the SALE of SCOTCH PIG-IRON, and is also desirous of ADDING one for the SALE of COPPER and SPELTER, in the counties of YORK, NOTTINGHAM, LINCOLN, and NORFOLK, and as he does business with all the most respectable Ironfounders, Machinemakers, and can have introduction to the most extensive Locomotive Builders, he feels confident that he would be able to do a good and safe business.

Respectable reference will be given, and letters addressed to Box 158, Post-office, Hull, will meet with prompt attention.

TO IRONFOUNDERS AND ENGINEERS.—TO BE LET, OR SOLD, BY PRIVATE CONTRACT, the PHŒNIX FOUNDRY and FACTORY, at TIVIDALE, near DUDLEY, suitable for carrying on an extensive trade in the Railway or General Engineering Business. The whole is fitted up with every convenience for immediate occupation.

For particulars apply to Mr. G. Hickman, Wolverhampton-street, Dudley.

FOUNDRY AND SMITHERY BUSINESS.—A good opportunity for embarking in this business, in the centre of the largest Mining District in Cornwall, or for working a Grist Mill.—TO BE LET, with immediate possession, for a term of years, the extensive PREMISES called REDRUTH HAMMER-MILL FOUNDRY, lately occupied by Sims and Co., calculated for an extensive Steam-Engine Business, as well as for the Manufacture of Mining Articles.

The stream of water is capable of doing a large quantity of work—turning three powerful wheels for various operations, and the recently-erected casting buildings make the premises very complete. They are also capable of being converted into a Grist Mill, under most advantageous circumstances, which is much required in that locality.

For particulars apply to Mr. Nicholas Trevena, Redruth.

LANCASHIRE AND YORKSHIRE RAILWAY.
CONTRACTS FOR COKE.

The DIRECTORS of the LANCASHIRE AND YORKSHIRE RAILWAY will MEET at the OFFICES, Hunt's Bank, Manchester, on Tuesday, the 22d May next, to RECEIVE TENDERS for a SUPPLY OF COKE, of the best quality, for locomotive and smithy purposes. The parties tendering will be required to state at which of the company's stations they will deliver the coke, and the proposed extent of such deliveries per week; also the period for which they will be willing to enter into a contract with the company, and the security they will provide.

Further particulars, and forms of tender, may be had on application to the undersigned; such forms, when filled up, to be properly endorsed and addressed to the directors, and to be sent in not later than Ten o'clock on the morning of the 22d May next.

By order, JNO. DUNSTAN, Jun.
Board Room, Manchester, April 25, 1849.

LONDON AND NORTH-WESTERN AND MANCHESTER, SHEFFIELD, AND LINCOLNSHIRE RAILWAYS.
TO IRONFOUNDERS AND OTHERS.

The DIRECTORS will MEET at their OFFICES, in Manchester, on Wednesday, the 16th of May, to RECEIVE TENDERS for the CONSTRUCTION of an IRON VIADUCT, to be erected on the Northern side of the Manchester Station, between Ashton-street and Store-street.—Plans, specifications, draft contracts and forms of tender, may be seen at the company's offices, in Manchester; and also at the offices of Alfred S. Jee, Esq., No. 6, John-street, Adelphi, London, on and after Monday next, the 30th inst.

Sealed tenders to be sent to the secretary, at the offices of the company, in Manchester, on or before Twelve o'clock on the morning of the 16th of May, after which time no tender will be received.

Parties tendering should either be present themselves, or send an authorised agent.
The directors will not consider themselves bound to accept the lowest tender.
Manchester, April 25, 1849. By order, J. H. HUMFREY, Sec.

TO BE SOLD (Cheap), a 40-horse HIGH-PRESSURE HORIZONTAL STEAM-ENGINE, quite new; cylinder 24 inches diameter, stroke 4 feet, mounted upon a strong metal box frame.—Apply to Mr. Matthew Smith, Sylvester Works, Sheffield, where the engine may be seen.

DUISBURG IRON-WORKS AND MINES,
IN WESTPHALIA, CLOSE TO THE RHINE.

Managed in England according to the principles of the "Cost-book System," and in Prussia as a *Société in Commandite*, under laws limiting the liability of the shareholders to their personal subscription.

Company's Offices, 28, Moorgate-street, City.

MINING PROPERTY.—Mr. JAMES HERRON, MINE AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE of SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17½ to 25 per cent. upon his outlay. He is also in a position to transact business in the following—viz.; United Mexican, St. John del Rey, Altens, Tamars, Tincroft, Holmbush, Treiawny, Mary Ann, Kirkcudbright, Bedford, Treviskey and Barrier, Trethellan, Great Devon Consols, South Wheal Frances, West Caradon, Stray Park, and East Wheal Rose Mines.

MINING OFFICES, THREE KING'S COURT, LOMBARD STREET, LONDON.—Messrs. R. TREDINNICK & CO. beg to draw the attention of capitalists to the DEPRESSED MARKET VALUE of SHARES in ENGLISH and FOREIGN MINES, many of which pay dividends of from 20 to 30 per cent. per annum, whilst those on the eve of so doing are selling at corresponding low prices.—Messrs. T. & Co. continue to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously, upon personal application.—MONEY ADVANCED upon the above securities.

MINING OFFICES, No. 8, GEORGE-YARD, LOMBARD- STREET, LONDON.—Mr. RICHARD THOMAS (who has had 20 years' experience as a mining agent in London) OFFERS his SERVICES in the PURCHASE and SALE of MINE and OTHER SHARES, on commission. Purchases in many valuable mines may now be made at unprecedently low prices. The fullest information given (without charge) relative to mining investments and operations.

N.B.—R. T. has now ON SALE a limited number of SHARES in an undertaking offering unusual advantages, situated in one of the best mining districts in Cornwall.

Full particulars will be furnished on application.

JAMES LANE, MINING SHARE DEALER,
80, *OLD BROAD-STREET, LONDON.*

EUROPEAN GAS COMPANY, 39, Finsbury-circus, London, April 26, 1849.—The directors hereby give Notice, that a CALL of ONE POUND per share on the NEW SHARES, allotted this day, is required to be PAID on Friday, the 3d day of August next, at the Commercial Bank of London, Lothbury, pursuant to the provisions of the Deed of Settlement. By order of the board,
J. B. GREAVES, Secretary.

GENERAL MINING COMPANY FOR IRELAND, Office, No. 2, Burgh Quay, Dublin, May 1, 1849.—Notice is hereby given, that a HALF-YEARLY GENERAL MEETING of the proprietors will be HELD at the office of the company, No. 2, Burgh Quay, Dublin, on Monday, the 4th day of June next, at the hour of Eleven o'clock in the forenoon, to receive the half-yearly accounts, up to the 2d of April last, and the auditors' report thereon, and to transact the general business of the company, and to elect two auditors of the company for the ensuing year. the ballot for which will commence at Eleven o'clock in the forenoon, and close at Three o'clock in the afternoon of the above day. THOMAS MAGUIRE, Secretary.

IMPERIAL BRAZILIAN MINING ASSOCIATION, Winchester-house, Broad-street, London, May 1, 1849.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the proprietors of shares in this association will be HELD at the London Tavern, Bishopsgate-street, on Thursday, the 17th inst., at Two o'clock precisely.

Notice is hereby also given, that at this meeting the election will take place of one director, in the room of Thomas Gibbes, Esq., and of one auditor, in the room of Henry James Brooke, Esq., who go out of office by rotation, but who, being eligible, offer themselves for re-election.—The vacancy in the direction, occasioned by the decease of G. L. Hollingsworth, Esq., it is not intended to fill up.

GEORGE THOMAS, Acting Director.

N.B.—The auditors' statement may be seen at the office three days before the above meeting.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S. &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

DAGUERREOTYPE CALOTYPE.—Just published, an ILLUSTRATED and DESCRIPTIVE CATALOGUE of all the APPARATUS, INSTRUMENTS, and PREPARATIONS requisite in the PRACTICE of the DAGUERREOTYPE CALOTYPE, and other PHOTOGENIC PROCESSES.—Professional and Amateur Artists are requested to forward their card of address, and four postage stamps, to the publishers, on receipt of which a copy of the above will be sent.

George Knight and Sons, Foster-lane, Cheapside, London, Sole Agents for Voigtlander and Sons Daguerreotype Lenses.

Original Correspondence.

A COAL MINE ON FIRE.

SIR,—The following successful result of an experiment made to put out a fire in a coal mine is so important that I feel a statement of the particulars will be interesting to your readers. On Monday morning, the 2d inst., one of my coal mines at Astley, was discovered to be on fire, and had spread to such an alarming extent as to prevent all access by the usual shafts. We immediately put out all the fires about the works, and requested the cottagers in the neighbourhood to do the same, for fear of an explosion. The plan of procedure in such cases (which happen more frequently than those unacquainted with collieries suppose) is first to stop down all openings into the mine, so as to prevent any access of the atmosphere. If, after some time, the fire is found not extinguished, the only alternative is to fill the mine with water from some source in the neighbourhood. In the absence of a sufficient reservoir of water, the pumps are stopped, and the water allowed to accumulate from the natural drainings, generally an unsatisfactory and slow process. In the former plan, notwithstanding every precaution is taken in sealing the shafts, it is found by experience that air in small quantities will be drawn through the stoppings and fissures of the earth, sufficient to keep up a slow rate of combustion for a very long period. We have proof of this in many cases occurring in this neighbourhood. In the extensive collieries worked by Lord Bradford, at Bolton, the mine has been on fire nearly two years. When the fire happened, it was sealed up for some months; but on opening it, the fire was still found burning. The pits were again immediately sealed up, and left to remain for twice the former period. On opening the mine at this time the fire burst out as before. It was again closed, and so remains to this day. At the collieries of the Earl of Ellesmere, at Worsley, one of the mines took fire about the same time; it was treated in the same way; it is still burning; and, at this moment, his lordship is about to turn in the Bridgewater Canal. In the Patricroft Colliery, the deepest mine in this county, a fire broke out in the upper part of the workings, which baffled every attempt to extinguish it, and is now stopped up and abandoned. At Mr. Blundel's colliery, at Blackrod, in this district, the pits were opened after being closed some time, on account of fire, when a fearful explosion took place, and did considerable mischief to the workings. The fire burned with greater intensity than ever; the flames rose out of the mines and set fire to the head gear, and burned so fiercely within the pit that it actually melted the iron tramwheels. In this case the river Douglas was eventually turned into the workings.

I could mention several other cases in this immediate neighbourhood, to show the importance of the question before us, and the difficulties we have to contend with when these accidents unfortunately occur. In our case we instantly sealed up the mine, yet fire-damp issued from every crevice about the stoppings and through orifices in the earth, in such quantities that the safety-lamps would take fire at a considerable distance. In this state of things, I wrote to Mr. Goldsworthy Gurney, whose application of high-pressure steam to the ventilation of coal mines is exciting so much interest, stating the case, and asking if he thought he could point out any plan by high-pressure steam exhaustion, or otherwise, likely to be of service. Mr. Gurney immediately came down, and after well investigating the conditions, in consultation with us, proposed to fill the mine with carbonic acid, azote, or some other extinguishing and incombustible gas. This, at first, appeared to us impracticable, and the immense quantities required to fill the galleries and lateral workings, together above three miles in length, too expensive, if it were possible to obtain it, to warrant the proposition. He, however soon set us right. He said azote, or nitrogen, might be obtained from the winds of heaven, and carbonic acid from the coals lying waste about the pit, assisted by a little charcoal and lime; air would he deprived of its oxygen by being passed through burning charcoal, coke, and small coal, and the azote set free. In short, the product of this combustion would be the choke, or black-damp, known in mines. We immediately built a furnace of brickwork four feet square, at a safe distance from the downcast shaft. To the ashpit, in every other respect made tight, an iron cylinder 13 inches in diameter was connected, and made to terminate at an elbow under water in a close tank partly filled. With the upper part of this tank, above water, another pipe was connected and carried through the stopping of the downcast pit. A powerful steam jet was made to work between the furnace and the tank, which drew the air down through the fire, and forced it through the water. A second jet was placed in the cylinder at the top of the downcast shaft, and made to draw the choke-damp from the tank, and force it into the pit. At the other, or upcast shaft, we placed [illegible] through the stopping, and made to exhaust from the shaft beneath, so as to assist the compressing jets, and draw the choke-damp through the galleries between them. The apparatus thus fitted, as soon as the fire had burnt up, was set in action. In order to test the effect of the choke damp, we placed some burning tow, moistened with spirits of turpentine, into it. The flame was as instantly extinguished as if placed in water. It was thus tested in the cylinder, as it passed from the ashpit, before coming to the jet; also in the tank and second cylinder, with similar results. This was satisfactory evidence of the perfect formation of the choke-damp. In about two hours after the jets were set in action fire-damp disappeared from the shafts, and we observed a slight cloudy appearance in the escapage from the upcast shaft. It had the sulphurous smell of choke-damp, which pervaded the air to a considerable distance. A safety-lamp was now brought and placed in the upcast cylinder; it became instantly extinguished as if put in water. For this purpose the draughts were momentarily shut off. A bright burning fire of charcoal, in a chafing dish, was placed in the escapage at the cylinder, and was also immediately extinguished. These facts were conclusive evidence that the choke-damp had passed through the mine. The period of its appearance agreed with our calculations. The quantity of choke-damp forced through the mine was about 6000 cubic feet per minute, and this would fill the galleries in about that time. The choke-damp was allowed to remain for several hours, at the termination of which we were convinced that all fire, however intense, must be extinguished in the mine. The connection with the furnace was now broken, and fresh air driven through by the same jets. In about two hours the choke-damp disappeared; this was shown by a safety-lamp burning clearly in the escapage, in the cylinder at the upcast shaft. We regarded the mine now as perfectly safe. With several men I descended the downcast shaft, 390 feet deep, to the tunnel leading to the working. We found all clear. The exhausting jet was kept up, drawing fresh air through the mine all night. The next day several workmen went down and passed through the workings, and found all clear and safe. Their report was particularly favourable. In no part of the mine could they perceive any fire, and the action of the single jet in the upcast is described by them as passing a current with greater speed than the furnace (which is pronounced to be the most effectual one in the county) had ever before done in this or any of the other mines of which I am the proprietor. This result has occasioned the greatest interest in our neighbourhood. Never was an experiment more successful. A gigantic power under such complete control, fighting with the elements, and, as it were, compelling them to destroy each other. The application of high-pressure steam to the ventilation of coal mines may effect a greater protection to life and property, but we regard this application as little inferior to the coal trade, and a triumph of science equal to any of the present day. The steam jet is now used to ventilate the mine; the galleries are perfectly clear, and the men are working with naked candles. In all the progressive stages of coal mining, but more particularly of the present time, when we find that by the ingenuity of scientific developments it has become one of the most prodigal sources of wealth, not only to the capitalist but to the labouring artizan, the uncertain value of mineral property has invariably thwarted and repulsed the enterprize of the nation. To-day we may have a remunerative adventure, watched over by the genius of revealed theory and practice; while to-morrow may discover it has become the element of wholesale destruction to life, or a wreck of private hazard and national wealth. This experiment goes far to remove the impending danger, and render those difficulties which hitherto have been insuperable easy to be overcome, and at so trifling a cost as to be within the reach of the smallest capitalist. The simplicity of the experiment is only surpassed by its novelty; and the success is unquestionably the most perfect that any single demonstration could possibly have produced. The advantages are more numerous than we can here detail. Supposing an ordinary fire requires the shafts to be sealed for two months, what is the proprietor to do in the meantime, if he cannot reduce the fire to a given space in the mine? His connections in trade, if not entirely lost, are restricted and broken; his mine injured and consumed; and the working colliers left to starve out the interim. His annual rents, interest of capital, and the more serious disbursements of incidental expenses, fall heavily upon him; whereas, the immediate application of our experiment would put the mine in a working condition with a delay of not more than two days. These facts are brought before the public for the benefit of all classes, being a public remedy for a national loss. To the untiring energy of Mr. Gurney are we indebted for them. He voluntarily tendered his services, and, owing to his ability, the mineral property of this kingdom has been insured against the destructive element of fire, and consequently made a safer investment for capital. I may add the expense of this experiment was trifling compared to the inconvenience, delay, and cost of letting in water to fill the mine and pumping it out again, being not more than as many pence as the other would have been pounds.

Astley and Tyldesley Collieries, near Manchester, May 1. JOHN DARLINGTON.

P.S.—Since writing the above, the extensive mines worked by Messrs. Ackers, Whitley, and Co., near Leigh, have caught fire, owing to the carelessness of the man employed to keep up the furnace, and the shafts are at this moment sealed up. The fire was so intense that it had consumed the horse trees supporting the lower lift of pumps, which fell down the pit before the sealing was made. The proprietors have, at present, only resorted to the old plan of closing up the shafts. Were they to adopt the above detailed experiment, I have no doubt of the result. Several fires have occurred, at various times, at these collieries, and the serious delays that have arisen, together with the losses sustained in their connections in trade, must have sufficient weight to convince them that the system adopted is as injurious as it is inefficient.—*May* 2.

THE BLACK CRAIG MINE.

SIR,—"A Miner" asks the question, "How can the Welsh shaft stand in the centre of the productive ground, when the bottom level is only driven 5 or 6 fms. east from the shaft?" Your correspondent is in error respecting the extent of this level; if he will add 30 fms. to his figures he will be much nearer the mark. I regret I cannot state that the ground has been productive for the whole length driven east. I do not at the moment recollect the exact distance between the Welsh and engine-shafts; but think it must be at least 80 fms. Now, all the productive ground gone down under the 25 fm. (or bottom) level is contiguous to the former; whereas, at the bottom of engine-shaft and for 30 fms. east and west of it, the lode has changed its character and is unproductive. Is "A Miner" aware that a line of rods was carried from the bottom of the engine-shaft along the 25 fm. level nearly to the Welsh shaft, in order to unwater the ore ground gone down under that level in the immediate neighbourhood of the shaft? I cannot fancy why these rods should have been brought here, if this is not the best part of the productive ground.

I presume the adventurers will wish to come at the ore by adopting the most speedy and economical method, and they will be able to draw their own conclusions on this subject, from the fact of a former company having taken a line of rods, some 70 or 80 fms. long, from the very point where "A Miner" would wish to sink to another point, *where the only ore in the bottoms is known to exist*, and where there is a good shaft already sunk. I conclude from this, that the former company found their engine to be in the wrong place, so far as the working of the ore ground to any profit was concerned, and the mine was, of course, abandoned; but if the present parties can derive any advantage from such fatal mistakes and dearly-bought experience, I trust the object of both "A Miner" and myself will be obtained. A FRIEND TO MINING.

Ireland, May 1.

MINING IN SOUTH AUSTRALIA—MODUM COBALT WORKS.

SIR,—The numberless works that have been written, and the accounts that we daily receive from this rising colony, all agree that, while it possesses all the elements necessary to become a great and important branch of the British empire, it is wanting in that sinew of wealth and progression—labour; that while in England, and other parts of Europe, people are famishing for the want of food, in Australia it is almost destroyed, in order to prevent its utter waste—there not being mouths sufficient to consume the food produced in the colony. The large mineral deposits already discovered there, and the likelihood of still further discoveries being made, point out the probability that the mining enterprises of South Australia will continue to hold, as they have hitherto done, the highest position among the various branches of industry already prosecuted in the colony. In order to insure the full and prosperous development of the mineral resources of the country, it is absolutely necessary that the supply of labour should be, in some measure, commensurate with the demand. Though I am of the opinion that a fair day's work is worthy of a fair day's pay, yet, unfortunately, we have seen, in many instances, where labour has been scarce, that the working classes have demanded so exorbitant a return for their exertions that proprietors, to avert the impending ruin which would result to themselves, if they foolishly complied with such unreasonable and unjust requests, have had no alternative but to suspend their works and discharge their labourers. Though this invariably recoils on the latter, who, in general, are so shortsighted as not to perceive that the wellbeing of themselves and families depends on the prosperity of the establishment to which they are attached, yet the damage which accrues to the proprietors is sometimes so great, and the blow so severe, that it perhaps takes years to recover, and deters capitalists from risking their property in speculations which depend so much not on the caprice of the employer, but the employed. To no species of enterprise can this be more detrimental than that of mining, as the suspension of workings for a few days may cause an incalculable loss, and, in some cases, total destruction. In England, the superabundance of labour in a great measure remedies this evil; but the Australian adventurer is at the mercy of his workmen, and can never be totally independent, until he sees in the market a fair supply of labour.

In your last week's Journal, I observe an advertisement announcing the sale of the Modum Cobalt-Works, in Norway. By the stoppage of these works some hundreds of miners will be thrown out of employment, and forced to migrate to other provinces to obtain work, either as fishermen or agriculturists; they are in general good and efficient workmen in hard ground, accustomed to tutwork, live hard and frugally, and work at a cheap rate—in general they are paid from $8 to $10 per fathom for driving, and $15 to $20 for sinking. The desire for emigration is rife among them, and it would be no difficulty to transplant them to another climate. Might this not be worthy the consideration of some of the new companies that are being formed for the prosecution of mines in South Australia? As the Norwegians are accustomed to work by the year, and receive their wages in *natura*, there would be no difficulty in making agreements with them for such lengthened periods as would cover the expense of their embarkation and passage to the place of destination.

Fleet-street, May 2. DELTA.

DUISBURG IRON-WORKS AND MINES.

SIR,—A fair question deserves a fair answer, especially when referring to matters of general interest, as discussed in your most valuable periodical. Your Birmingham correspondent appears to me particularly entitled to obtain the correct information he is in want of respecting the mines and calculations of the Duisburg Iron Company; and, as one of the earliest shareholders in the undertaking, I beg to volunteer my services. "Seeing is believing;" and as, [illegible] with our money, I would see for myself, I took an English mineral surveyor with me to report upon the prospects of the company. I can say that your correspondent's informant must have mistaken this company for some other French, Belgian, or German concern.

One of the company's mining properties, which is about three and a half English square miles in extent, is situated between Castrop and Bochum—two of the stations of the Cologne and Berlin Railway. The trains between Bochum and Duisburg run the whole distance in about *one hour*; but the works are to be erected between Duisburg and Hattingen, on the Ruhr, 12 miles nearer to the mines, reducing the whole distance from the mines to the works to 13 miles—not 100, as your correspondent states!

Another of the mining grants of this company is situated near the town of Witten, whence the River Ruhr is navigable down to the Rhine at a very trifling cost. By this grant, the privilege of mining and extracting iron ore is secured to the company under a territory comprehending four and a quarter English square miles—altogether, seven square miles and three quarters for both grants. In the immediate vicinity of the town of Witten, there are eight extensive collieries constantly at work, producing the very best coal for smelting and coking purposes. Small coals are sold there at 3s. 6d., and picked coals at 4s. 6d. per ton; and the carriage from the pits to the works will not, in large quantities, exceed 10d. per ton down the Ruhr in flat bottomed boats. The limestone formation prevailing over the whole district, immediately adjoining the carboniferous strata, blue limestone may be procured at the almost nominal price of 4d. per ton from any of the neighbouring quarries, which, combined with 1s. 6d. per ton for carriage, makes a total price per ton of 1s. 10d. The foregoing statements will, I hope, meet your correspondent's points. I have now to sum up the items for producing one ton of pig-iron at the proposed works, according to the most accurate data and estimates, and prove that 40s. is an ample sum to make a ton of "pig" in Westphalia as well as in Scotland:—

Iron ore, 3 tons, at 4s. 2d. per ton		12s. 6d.	
Carriage, 1d. per mile, for 13 miles, ditto		3 3	15s. 9d.
Fuel, 3¼ tons of coal, at 3s. 6d., at the pit's mouth		11 6	
Carriage down the Ruhr, at 10d. ditto		2 11	14 5
Repairs to boilers, &c.		0 6	
Fuel for ditto		1 8	2 2
Limestone, ⅔ ton		0 3	
Carriage for ditto		1 3½	1 6½
Salarises, wages of men at the works, &c.			6 0
Total cost at the works			£1 19 10½

As to the private opinions entertained of the undertaking, they will be favourable to it in a direct ratio with the attention bestowed upon the investigation of the company's plan—the requirements of the iron market in Prussia, the protection afforded by the Zollverein to local industry, and the price that a superior description of pig-iron is always sure to fetch in a country where the demand is much above the production. I trust these explanations will satisfy the "Old Mine Adventurer."—VERITAS: *Hyde Park, May* 2.

PRICE'S PATENT KNIFE CLEANER.—Mr. Price, of the Emporium of Useful Inventions, Strand, is the patentee of this desirable article of domestic economy. Externally it has the appearance of a square box; the interior consists of two circular drums, coated with buff leather, placed at angles, on which emery falls through a grating, fixed on the top of the case. The knives are not stationary, or cleaned by brushes; but revolve by means of a handle apparatus and a circular plate. A fine polish is given to them by this process; while the objection of the edges being worn, or dulled, by the friction they undergo, is entirely obviated. They are not expensive, and can easily be repaired, as the leathers, when worn out, can be replaced at a trifling cost. In hotels and large establishments, where celerity and cleanliness are required, they will be found of great utility; while the manipulation necessary is so trifling, that a child can with ease manage the apparatus; at the same time, the wear and tear of the knife is much less than by the old process of rubbing. The time occupied in cleaning a dozen knives is little more than a minute; and we have no doubt, when their utility is further known, that they will become an article of general consumption.

MUSIC HALL, STORE-STREET.—Mr. Henry Nicholls, a gentleman already well known in the histrionic profession, by his exertions in most of our provincial towns, has, within the last few weeks, given several dramatic readings from Shakspere in this hall. Mr. Nicholls, in his announcement, modestly professes to attempt ideal personations of the principal characters. On Monday last we attended his reading of *Macbeth*, and we were agreeably surprised, when so many complaints are made of the decline of the drama, to perceive a crowded and well-dressed auditory assembled to greet Mr. Nicholls in his efforts. With a fine modulated voice, Mr. Nicholls, in our opinion, adds a just and correct delineation of the several characters he pourtrays, never descending to rant or superabundant action, while the transition from one part to another was carefully and distinctly given. We noticed this particularly in the scene, in the fourth act, between *Malcolm*, *Macduff*, and *Rosse*, and the several bustling scenes in the fifth act. Mr. Nicholls evidently possesses histrionic powers of the first order. The interest did not appear to subside during the whole of the entertainment, though deficient in scenic illusion and stage accessories, and the general feeling of the audience, at the conclusion, was regret that the reading had finished so early.

RIGHTS OF THE CROWN—THE PORT COLLIERY COMPANY.

ROLLS' COURT, APRIL 30.

THE ATTORNEY-GENERAL *v.* REES AND OTHERS.—This was an information filed against John Hughes Rees, the Earl of Cawdor, and several others. It stated that, by the Royal prerogative, the sea and sea-shore, and the soil of all arms and creeks of the sea round this kingdom, as far as the sea flows and reflows between high and low water-mark, and the soil of the navigable rivers of this kingdom, and all mines and minerals lying under the sea, sea-shore, and all arms and creeks of the sea, and all the profits arising from the sea-shore, and arms and creeks, belonged to her Majesty as Queen; that an estuary called the Bury River opened out of the northern side of the Bristol Channel, and entered the land on the south side of Carmarthenshire, the shores of which estuary were of great extent between high and low water-mark, and that the northern shore of the Bury River, between high and low water-mark, belonging to her Majesty as Queen; that on the southern side of Carmarthenshire lay Pembrey, and immediately contiguous to the sea-shore of the Bury River there were pieces of land, called Blackrock Farm and Penleck Farm, in the possession of William Chambers, a defendant, and another piece of land, called Kellymanthroyd Farm, in the occupation of Rees, another defendant. There were valuable and extensive seams of coal and culm under the lands, which, by means of a shaft sunk in Blackrock Farm, belonging to the defendants Chambers and Rees, had been worked, and coal and culm gotten therefrom; and, by embankments and other works, made with the sanction of the defendants, the line of high-water had been removed lower down the sea-shore, and the former run and scour of the tides had been checked, and the shore opposite the plaintiff's lands had been raised by the projection and subsidence of sand, &c., and large portions of land formerly covered by the sea, had become permanently dry, or only covered by the sea at extraordinary high tides. The bill, after many other statements, prayed that the right of her Majesty to the sea-shore of the parish of Pembrey below high-water mark, and to all veins, seams, or strata of coal, might be established and declared, and that any licenses to the defendants to work, dig, or raise coal or culm from those parts of the seams which lie under the sea-shore might be declared void, &c. To this bill the defendants put in their answer, and to that answer the Attorney-General filed exceptions. The Master, upon reference to him, found by his report that the answer was sufficient, upon which the Attorney-General took exceptions to the Master's report, and these exceptions now came on to be argued.

The Solicitor-General, Mr. Turner, and Mr. Maule, were for the Crown, in support of the exceptions and against the Master's report; and Mr. Malins and Mr. Renshaw, *contrà*, were for the Master's report, finding the answer sufficient.

Lord LANGDALE allowed the exceptions taken by the Attorney-General, and decided that the answer was insufficient; and he gave the defendants six weeks' time to put in their further answer.

VENTILATION OF MINES—STRUVE'S PATENT VENTILATOR.—About 50 influential gentlemen interested in mining and scientific pursuits, visited Eaglesbush Colliery, near Neath, on Monday last, to inspect Mr. Struvé's patent mine ventilator, and witness its operations. Among the company we observed J. Palmer Budd, Esq., J. D. Llewellyn, Esq., R. F. Mansell, Esq., G. Llewellyn, Esq., the Rev. F. F. Knight, rector of Neath, the mayors of Swansea and Neath, the Rev. D. Jeffreys, John Calland, Esq., John Rowland, Esq., Dr. Nichol, Dr. Bird, Dr. Wrigglesworth, Dr. Jones, Captain Morgan, Mr. Watson, mining engineer; Mr. Waring, mining engineer; Mr. Richardson, civil engineer; Mr. Bond, mining engineer; Mr. Cuthbertson, coroner; Mr. Williams, Mr. Moggridge, Mr. W. Leyson, Mr. French, &c. Mr. Struvé, who was present, gave the requisite explanations, and showed by Biram's anemometer, the quantity of air passing from the upcast shaft to the machine to be 12,000 cubic ft. per minute, which was less than usual, owing to the doors of the air tunnels being constantly opened by parties entering into and passing out of the tunnels. The machine was, however, capable of coursing 40,000 ft. of air through the mine, and if necessary, by larger apparatus, 200,000 or 300,000 ft. might be obtained. After some time devoted to a careful examination of the several parts of the apparatus, and witnessing the successful operations of the machine, the party partook of an excellent cold collation at Eaglesbush cottage. In discussing the merits of this valuable invention, decided opinions were expressed in its favour by Mr. Moggridge, Mr. Budd, Dr. Nichol, and Mr. Richardson. Messrs. Penrose and Evans both expressed themselves well satisfied with it, and stated that its expense did not exceed 6s. per day, and they confidently anticipated that the sum expended in the erection of the machine would be speedily reimbursed by the increased facilities they had thus obtained in carrying on the works, and by the avoidance of accidents. It was the unanimous opinion of the gentlemen present on this interesting occasion, that the most complete success had resulted from this attempt to improve the ventilation of mines, and earnest hopes were expressed that coalowners generally would follow the meritorious example of Messrs. Penrose and Evans, by adopting the simple and efficacious means of ventilation now offered for their acceptance by Mr. Struvé. For a full description of the machine we refer our readers to Mr. Richardson's paper, in the *Mining Journal* of the 10th of March last.

ACCIDENTS.

The subscription for the widows and children of the sufferers in the late calamity at Darley Main, amounts to upwards of 2000*l.*

Another Explosion of Fire-damp.—At the Agecroft new coal mines, four miles from Manchester, the property of Messrs. Knowles, of Pendlebury, an explosion of carburetted hydrogen took place on Monday last. The shaft is 900 ft. deep, and there were at the time from 90 to 100 men and boys at work in the mine. One boy only, Jacob Barker, was killed, but several were seriously burned, and otherwise injured. A boy, R. Price, who caused the accident, by taking a naked candle into an old working, was much burnt.

Pithponds Colliery, near Bristol.—A fatal accident occurred at this colliery, which had been deserted as unprofitable, and was taken by a miner, named Monk, to get the coal from some unworked spots. Some of the men not coming to surface at the usual time, others descended, and found a man, named Tanner, quite dead from suffocation, and two others just at the last gasp of life; they were, however, brought out, and recovered.

Kingswinford.—Susannah Penfold accidentally fell down a stone pit at the "Level," the property of Messrs. Hall and Allcroft, and was so much injured, that she died shortly afterwards.—Geo. Nock was also killed by an explosion of fire-damp in a pit belonging to Lord Ward.—Wm. Wakelam was killed by a fall of roof in a pit at Stand Hill, the property of Messrs. Dukes and Jones.

Bilston.—Aaron Haywood was killed by a fall of roof in a stone pit at Riley's Field; he had taken away one of the timber props before putting another in—a careless practice, of which he had, without doubt, been constantly guilty.—In Lester's Field, Edw. Upton was being drawn up a shaft, when, in attempting to keep the skip from the side, he lost his balance, and fell to the bottom of the shaft, a distance of 180 feet, and was taken out dead. T. Lines, who was with him, also had a narrow escape from the tilting of the skip.

Merthyr.—Thomas Thomas was killed by a piece of wood falling on him from the top of a level at Penydarren.

Rochdale.—W. Wild was killed by a fall of stone in a colliery at Butterworth.

Cwmbrane—Deplorable Occurrence.—On Wednesday evening last a young man, aged 18 years, named George Beese, while at work in one of the levels belonging to Reginald James Blewitt, Esq., M.P., tramming out, a stone fell from the top on the back part of his neck, and caused instant death. An inquest was held on the body, when a verdict of "Accidental Death" was returned by the jury. Mr. Bees was much respected by all his acquaintance, and has been a member for some at Panteague Church.—We have just heard of another fatal accident, which happened last Friday evening to one William Oddie, while at work in a level belonging to C. H. Leigh, Esq., at Cwmbrane.—*The Principality.*

Worcester.—A little boy, named W. Sheppard, was killed by getting entangled with the machinery of the engine-house at the Still House Colliery.

[From the *Plymouth Journal.*]

SOUTH WHEAL TRELAWNY is situated in the parish of Menheniot, and about 3 miles from Liskeard, and lies to the south of Wheal Mary Ann and Wheal Trelawny. It adjoins the former, and has been supposed to be on the same lodes, but this is not proved. The operations are chiefly confined to an adit level, which has been driven about 100 fms. on the course of a lode, which has presented some kindly appearances, that induced the adventurers to sink a shaft to the 30 fm. level and drive a cross-cut to intersect the lode, which, at this point, did not present a very encouraging appearance, and preparations are now making to sink another lift (as the same has not been actually commenced) to prove the lode in depth. Every miner must wish success to this spirited undertaking, equal to that enjoyed by their rich neighbours.

WHEAL MARY ANN LEAD AND SILVER MINE is situated in the parish of Menheniot, and bounded on the south by South Wheal Trelawny, on the north by the Trelawny Mines, and its extent on the course of the lode is about half a mile—its present depth about 50 fms. from surface; the lode has been opened on about 100 fms. From Trelawny southward, the lode, as far as opened on, presents most promising appearances, and has yielded very fair quantities of lead, very rich for silver. More ore has been discovered in the south part of the depth than was met with in the shallow levels—a fact very encouraging to the South Wheal Trelawny adventurers. Wheal Mary Ann may be considered one of the best speculations in the district, and there can be no doubt that she will make a lasting and highly remunerative mine.

WHEAL TRELAWNY.—This lead and silver mine is in the parish of Menheniot, and bounded on the south by Wheal Mary Ann, northward a part of the Trehane set intervenes, and takes away about 100 fms. of the most productive part of the lode. In the southern part of it a shaft is sunk about 70 fms. deep, and the levels extend southward to meet the Mary Ann boundary, and northward to join that of Trehane. The lode is one of the most regular and well defined in the county, almost all the ground being worth taking away, and has yielded throughout half a ton of lead to the fathom. The lower levels continue to open well. This sett extends about 200 fms. to the north of Trehane. Only one level, the 30 fm., has been extended northward from the Trehane boundary for about 100 fms. through a very productive lode, leaving 100 fms. to the north unexplored. This mine although she has been at work nearly seven years, may, when the extent of untried ground and her depth are taken into account, be considered to be in her infancy. Hitherto the profits have been inconsiderable, but we may well congratulate the shareholders on their future prospects. [Notices of South Wheal Trelawny, Wheal Mary Ann, and Wheal Trelawny, were published in the "Compendium of British Mining," in the *Mining Journal* of the 6th January last.]

EXMOOR WHEAL ELIZA.—The cross-cut is expected to intersect the north lode in the 12 fm. level in about seven weeks from this time. More cannot be said of this lode than that the gosson in the back was very large and promising. A change is confidently expected in the south lode shortly.

WHEAL ASH.—This large lode of mundic continues, but is now accompanied by a leader of soft spar, gossan, prian, and black ore, between the mundic and the north wall of the lode, which is gradually increasing in size.

WHEAL YEOLAND.—Middle Lode: The operations in this lode are for the present suspended.—North Lode: In sinking the shaft, which is let at 13*s.* 4*d.* in 1*l.* tribute, the men continue to make wages.—South Lode: In putting forward this stope the lode continues to improve very considerably.

WHEAL FRANCO.—In the 47 the lode which was discovered to be standing to the south is being broken into, and so far is quite equal to our expectations. In the 53 fm. level east there is a little ore coming into the end, and the character of the ground and size of the lode have improved; in the 62 fm. level west there is a most promising lode, which is gradually improving. The lode in the end is composed of very large stones of solid ore in can, mixed with ore and soft spar. The stones of ore are picked out and the remainder of the lode goes to the stamps. We consider the prospects of the mine, on the whole, greatly improved. The ore sold has produced a better price than was stated.

BIRCH TOR AND VITIFER MINES.—There is no change here since our last.

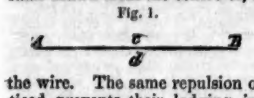
ON PYROGEN.—No. IV.

BY JOHN JOSEPH LAKE, ROYAL LABORATORY, GOSPORT.

The spiral motion of pyrogen, when passing along a wire, has been hitherto considered fatal to the idea of the unity of the electric fluid, it being thought that nothing but the opposition of two fluids to each other could produce this effect. The following explanation will, however, show that it is perfectly consistent with the theory of one fluid; whilst it will be remembered that, in my last paper, it was proved to be quite opposed to the idea of two fluids, since their supposed mutual attraction should cause them to combine, and not impinge against each other with such force as to cause a mutual deviation from their courses.

The direction of a body propelled by two forces, applied from different sides, is diagonal to the lines of motion of the forces. Space need not here be occupied in illustrating this well-known mechanical law. When a stream of pyrogen is discharged, or flows along a wire, two forces are developed; one urging it forward to its destination, and another in the direction of radii drawn from the centre of, and perpendicular to, the wire. Let A, B (*fig.* 1), represent a wire; the particles of pyrogen passing at *c* are repelled by those passing at *d*, and *vice versâ*; and the same occurs over the whole surface of the wire. The same repulsion of the particles of the fluid, as already noticed, prevents their lodging in the interior of a sphere, or roll of wire gauze. These two forces commence and terminate together. By one of them the fluid is urged forward; by the other, the impulse applied at right angles to its course, it seeks to escape from the wire. When it cannot escape, its motion is regulated by these forces, and instead of moving parallel with the wire, it passes spirally or diagonally round it. This spiral form may, therefore, be viewed as the result of the operation of a mechanical law, by which matter is governed, and from the influence of which the electric fluid is not exempted—thus affording another proof of its materiality. The existence of this rectangular action of the fluid, moving along a wire, seems to require some experimental proof, being too important to be left to mere supposition. From long study of the subject I became certain of its existence, and especially from having noticed during a severe thunder storm that occurred in this neighbourhood, one night in the summer of 1846, that the fluid descended to a windmill at the back of my house, and coming in contact with the point of the axle on which the sails are fixed, the main body appeared to pass through the mill, whilst a portion separated along each sail, and went off in flashes at the four extremities. Considering that this rectangular action should develope itself, if means were afforded for the purpose, and that its existence might be proved by the magnetising of needles, I made the following experiment:—Two pieces of copper wire, each about a foot long, were united by twisting one round the other two or three times at their centres, thus forming a cross. An end of one of the wires was then bent round a piece of glass tube, the whole mounted on an insulating stand, and the other wire placed in a galvanic circuit. On the needle being withdrawn, it had not acquired any perceptible magnetism; but on joining 43 feet of copper wire, covered with calico, to the first wire, and coiling it round the glass tube, needles put into the tube were magnetised on placing the second wire in the galvanic circuit, provided the needle was introduced into the tube before the circuit was completed, and withdrawn before it was broken, or, being introduced after the circuit was completed, was not removed until the circuit was broken. This clearly shows that an electric current had passed along the covered wire coiled about the tube, and the principle of the action of the fluid appears to be this:—when a quantity is discharged, it seeks to diffuse itself in every direction; when confined to a wire, it endeavours to do so at every step of its progress, and as soon as it meets with an opportunity, like the cross wire with the coil, a portion starts off, as is proved by the development of magnetism in the needles placed in the tube. When pyrogen is not discharged by a wire, but directly upon a large conducting surface, it spreads itself in every direction at once; no current can, therefore, be perceived, and no perceptible magnetic effects are produced. These rectangular currents may be produced *ad infinitum* from one another, and also from every portion of the surface of the circuit wire.

Fig. 1.



The power of a galvanic battery is proportioned to the quantity of zinc oxidised; and as this oxidation results from the decomposition of the water of the solution, for every equivalent of oxygen an equivalent of hydrogen must be produced; an equivalent of pyrogen also must be released; and, supposing two fluids, an equivalent of each. The latter combining on the wire, as they are assumed to do, and which they must according to their equivalents, where is the surplus of either positive or negative fluid to produce the rectangular current in the coil of wire? Again, suppose a surplus of either to exist, it must be of the positive or negative; for if of both it would combine, and thus cease to be a surplus. Whence then comes the opposite fluid to impinge against that moving on the covered wire helix round the glass tube? On the theory of two fluids it must come from some source; for when the coil is insulated in the most perfect manner possible, to prevent the counter current of fluid of the opposite nature, there is no difference in the effects on the needles in the glass tube from what is observed if the primary current be directed through the coil, which, if one of the fluids were absent, it is to be presumed would be the case.

Having demonstrated the existence of a rectangular force or action on the whole line of a current of pyrogen, moving along a wire, I will now proceed to inquire into the cause of the rectangular position that a needle assumes when placed above or below such a current; and for this purpose shall assume what is considered to be the case, that the magnetism of the needle is the result of electric currents circulating round it—the direction of the currents being across the length of the magnet. It is found by experiment that, when two wires are suspended parallel to each other, and separate currents passed through them, if the currents flow in the same direction the wires attract each other; but if the currents move in opposite directions, the wires separate from each other. I shall not now offer an explanation of the probable cause of this—the fact that currents flowing in the same direction attract, and in opposite directions repel, each other, being sufficient for the present purpose. It has also been proved by experiment, as regards separate currents on two wires, that if one be fixed, and the other capable of turning on its centre, the moveable wire, in whatever direction it may be placed, will return to a position parallel with the other, in obedience to the above law, and remain so until disturbed by some extraneous influence. When a current is passing along a wire, a magnetised needle, suspended above it, assumes a position at right angles to the wire, with its north or marked pole to the right; and, when placed below the wire, it takes up a similar position, with its marked end to the left. The cause of this is as follows:—When the needle is suspended above the current, the upper side of the wire current, if acting alone upon it, would cause it to stand in the position indicated in *fig.* 2, in which the arrow shows the direction the fluid is moving on the wire; but the underside of the wire current would, but for the influence of the upper side, cause it to stand, as shown in *fig.* 3; for in each case the currents on the wire, and about the magnet, would coincide, and the same effect be produced in either case as when two wires—one free to move on a centre, and the other fixed—having separate currents passed through them. Neither of these influences can, however, act alone, and the magnet is forced to assume a mean direction between them, which it does by placing itself at right angles to the wire current, as in *fig.* 4. The same principle acts in the opposite direction, when the needle is suspended below the wire current. The above clearly confirms the hypothesis of the magnetism of the needle being the result of currents of pyrogen circulating about it. For the circuit wire of a galvanic battery, or a wire uniting the two poles of an electric machine, or any other wire, are magnets, so long as electric currents are moving upon them; and as steel possesses the property of retaining the fluid permanently, currents are constantly circulating about magnets of it, which currents I have just shown obey the laws of temporary currents—thus proving their identity.

Fig. 2.

Fig. 3.

Fig. 4.

THE PESTH SUSPENSION BRIDGE.—We regret to state that a piece of intelligence has reached us, which we are loth, for the sake of the Austrian character, to believe. The suspension bridge, between Pesth and Buda, the largest in the world, and the pride of Hungary, which did so much credit to the skill of the constructor, Mr. Tierney Clarke, our countryman, has been destroyed by the Austrians, in order to cover their retreat. Besides this piece of wanton devastation, they burnt the bridge of boats. This is warring against civilisation itself.

MINING LAWS OF SPAIN—No. II.

CHAP. III.—OF THE WORKINGS AND ECONOMY OF THE MINES.

ART. 14.—The proprietor of a mine is entitled to the benefit from water found in the same, whilst he preserves his ownership; but he shall be liable to make good the damages and injuries which may be caused to a third party through the said water flowing into, and mixing with, rivers, streams, or water-courses. The proprietors of mines are also responsible for all damages and injuries occasioned by their workings to a third party.

ART. 15.—Every miner is obliged to make good the damages which may be occasioned to his neighbour by the water accumulated in his workings, if on being required he does not drain them within the term stated in the regulations. Miners are also obliged to contribute proportionally for the benefit they may derive from the drainage of neighbouring mines. The same shall also take place, when with the Government authority (to be always preceded by an official report, and hearing of the interested parties), adits for drainage or carriage are opened for a group of pertenencias, or a mining boundary for all.

ART. 16.—The discovery of ores in free ground by means of drainage or carriage adits, or their shafts for ventilation, shall entitle those who have undertaken the works to a grant of pertenencias. If the ores are found within known pertenencias, half shall be for the owners of these, and half for those who have undertaken the adit—the latter paying all the costs of raising to the surface. In such ground the proprietors of the adit shall never depart from the line and dimensions laid down in the plan of the adit.

ART. 17.—The proprietors of pertenencias which may cross a drainage or carriage adit shall not be at liberty to work away the ore which the walls of the adit may contain for a depth of 3 varas, unless he supports the same at his own cost, according to law, and the judgment of the Engineer of Mines.

ART. 18.—Adits or general levels of research shall not be opened, without authority from the Government, and the consent of the proprietors of pertenencias which would have to be crossed. The rights of those who undertake them shall be as respects ores which may be met with in pertinencias already granted, such portion as the proprietors of these may agree to give up, and of ores found in free ground, those which, in a similar case are granted in the 16th article to the persons who drive drainage adits.

ART. 19.—Miners and reducers of ore shall be considered as inhabitants of the towns where the mines, factories, or reduction works are situated, in respect to the use of water, woods, commons, pastures, and other common advantages, appertaining to their industry.

ART. 20.—They shall also be able to obtain from the legal owners, or administrators, the lands which they may require for their shafts, pits, buildings, storehouses, reduction works, slags and attle heaps, washing places or other appurtenances, ways and roads, not exceeding half a league, whether public or private. In case of disagreement between the interested parties, the dispute shall be submitted to the provisions established by the law of forced appropriation on account of public utility. When the factory, or reduction work, requires the use of wood fuel, or to construct any waterfall (leat), the permission of the chief magistrate must be obtained, under the advice of the provincial council. The same authority is required to open roads of more than half a league in length—the same being opposed by the towns, or the owners of lands through which they may have to pass.

ART. 21.—The mines are to be worked according to the rules of the art; their proprietors and workers shall submit to the laws regulating the police. Transgressions shall be punished by a fine of 400 to 2000 reals, and double in case of repetition. Crime shall be punished according to the laws. In every case damages and injuries are to be made good.

ART. 22.—No mine shall be considered as in work if there should be less than four men continually employed in respect to each pertenencia.

ART. 23.—The workings of a mine cannot be suspended, with a view to abandonment, without giving previous notice to the chief magistrate, in order that, through the engineer of mines, he may ascertain and be assured that the workings are properly supported; if he finds that they are not so, it shall be done at the cost of the proprietor. Infractions shall be punished by a fine of 400 to 2000 reals.

CHAP. IV.—OF THE CASES IN WHICH THE PROPERTY IN THE MINES WILL BE LOST, AND OF "DENOUNCEMENTS."

ART. 24.—The right to a mine is forfeited, and it shall be denounceable by any other person in the following cases:—1. When the conditions of the grant are not complied with.—2. When six months have elapsed from the date of the grant without commencing the works.—3. When these, being undertaken, the mine is not *poblada* [at least four men employed] for four consecutive months, or eight interrupted months in the course of a year.—4. When, through bad management, the workings are threatened with ruin, the proprietor, if required, does not support them within the time appointed.—5. When, through a covetous mode of working, any ultimate advantage from the mineral is rendered difficult or impossible. In the second, third, and fourth cases, allowance may be made for circumstances which may impede the working, provided they are certified in due form.

ART. 25.—If a pertenencia be abandoned, the edifices appertaining to it shall remain the property of the proprietor, unless he also abandons them. Mining edifices are to be considered as abandoned when they are in so bad a state as to be unfit for the purpose for which they were erected. After ten years have passed from the abandonment of a mine or reduction work, without denouncement by any other party, the ground occupied by the edifices and appurtenances shall revert to the original proprietors.

ART. 26.—If a mine, or reduction-work, or pertenencia of slag heaps be abandoned, it may be denounced by any person before the chief magistrate; if the denouncement be opposed, the question shall be heard before the provincial council, and the old proprietors examined. The abandonment being declared positive, as well as the process of denouncement, the grant shall be made in the form established in Art. 5, although ore may not have been discovered.

CHAP. V.—ON THE GRANT OF SLAG-HEAPS AND ANCIENT HALVANS.

ART. 27.—Slags and halvans from old abandoned mines are declared denounceable, excepting those which may be found within pertenencias legally granted, and which may not have been denounced with a view to the same. Halvans and slags belonging to the establishments reserved by the State are also excepted, particularly all those which may be found within a radius of four leagues from the mine of Almaden.

ART. 28.—As a general rule, the same requisites shall be observed in the grants of halvans or slags as in the grants of mines; but abbreviating the proceedings according as the difference between mines and slag-heaps requires, and always previously having an inspection, plan, and report by an engineer. The proceedings to be observed in the matter above-mentioned shall be determined by regulation.

ART. 29.—In ancient slags, and modern slags which may have been abandoned and in unoccupied ground, the pertenencias shall be granted in the figure of a rectilinear polygon, as may be indicated by the petitioner, calways providing that it does not exceed 80,000 square varas.

ART. 30.—In order that a halvan or slag heap, may be considered occupied, it shall have at least four men employed.

ART. 31.—The right to a slag heap is lost in the following cases:—1. When not occupied according to the preceding article.—2. When the working is not commenced within eight months from the date of the grant.—3. When the working is interrupted for more than two months, and not occasioned by force of circumstances.

[To be concluded in next week's Mining Journal.]

MINING AND RAILWAYS IN EGYPT.—A number of explorations having recently been made by an experienced Austrian engineer, and a discovery of valuable ores been made in several districts of Upper Egypt, the new viceroy has turned his particular attention to mining enterprise, and appears anxious to give every encouragement to the development of the mineral resources of the country, by affording the greatest facilities, and giving encouragement to foreign adventurers, granting them peculiar and valuable privileges, and insuring their personal safety. He is exceedingly desirous to see a railway established in Egypt, which will lay the foundation of carrying out the system throughout Turkey, and which would greatly extend the commercial relations of the empire, and fully develope resources hitherto almost unknown. To carry out these ideas the viceroy has notified that every description of machinery necessary for mining enterprise, as also rails, sleepers, locomotives, and the requisite materials for railway construction, shall be admitted free of duty, while a great modification of the Egyptian tariff, with respect to the importation of iron, machinery, cutlery, and the several metals, from England and other countries will shortly take place.

Recipes.

PAROLIC, OR UNIVERSAL CEMENT.—Curdle skimmed milk; collect the curd, press out the whey, break the curd into small pieces, dry it by the heat of a water-bath, and reduce it to a fine powder. To 10 ounces of this powder add 1 ounce of finely powdered quicklime and 2 scruples of camphor. Mix them well together, and keep the mixture in closely stoppered bottles. When used, a portion of the powder is to be mixed with a little water, so as to form a paste, which is to be applied quickly.

BOTANY BAY CEMENT.—Botany Bay resin and brickdust, of each 1 lb. Mix together with heat.—Used to cement earthenware articles.

SEAL ENGRAVERS' CEMENT.—Common resin and brickdust, each 1 lb. Mix with the aid of heat. This is inferior to the Botany Bay Cement.—Used by plumbers also.

CAP CEMENT.—This is one of the numerous cements which contain wax and resin, and are used for causing adhesion, or making tight joints at common temperatures.—Yellow resin, 5 ozs., bees' wax, 1 oz., red ochre, 1 oz. The latter should be well dried on a sand bath; the wax and resin melted together, the powder stirred in by degrees, and the heat continued a little above 212°: and when the frothing has ceased, stir until it is so cold that there is no fear of the earthy particles falling.

TOOTH CEMENTS.—No. 1: Gum sandrach 2 dms., mastic 1 dm., amber 10 grs., ether 1 dm. Put the ingredients into a stoppered bottle, and dissolve with the aid of heat.—No. 2: Put 2 ozs. mastic, and 3 ozs. absolute alcohol into a bottle, capable of holding 2 lbs. Effect solution by the aid of heat. Add 9 ozs. of dried balsam of toulu, and again apply the heat (hot water), and frequently shake the ingredients together—then allow the bottle to stand in the hot-water for some time, in order that any insoluble matter may subside. This is to be introduced into the tooth with a piece of cotton wool.—No. 3: Vienna tooth cement consists of a viscid solution of some of the foregoing resins with powdered asbestos.—No. 4: The principle of Ostermaien's tooth cement is the formation of phosphate of lime in the cavity of the hollow tooth. For this purpose anhydrous phosphoric acid must first be formed, by burning phosphorus under a bell jar: 48 parts of the anhydrous acid are to be mixed with 58 parts of pure unslaked lime, in fine powder, and the requisite quantity pressed into the tooth after it has been well dried.—No. 5: The metallic tooth cement is supposed to be a triple amalgam of mercury, silver, and ammonium, with an excess of the latter. Part of the ammonium of which loses hydrogen, and escapes as ammoniacal gas, whilst the remainder of the ammonium, silver, and mercury, remain as a firm alloy in the cavity of the tooth.

ROMAN CEMENT—HYDRAULIC MORTAR—PARKER'S CEMENT.—This is a kind of cement, or mortar, which sets or becomes hardened when covered with water. All good hydraulic mortars contain alumina and silica, in addition to lime. Some of the poorer sorts of limestone, containing from 8 to 25 per cent. of silica, alumina, magnesia, &c., when burnt, yield a lime which does not present the usual phenomena of slaking; but which, when made into a paste with water, possesses the property of hardening under water. Cements possessing this property are also made by burning puzzolana, septaria, and siliceous or argillaceous earths, with or without common limestone, and then grinding them to powder.

VARIOUS CEMENTS.—No. 1: Shellac dissolved in rectified spirit forms a good cement in some cases; or the shellac may be melted at the flame of a candle, and applied in this state. Shellac dissolved in water, with one-third of its weight of borax, is sometimes used.—No. 2: The white of egg, mixed with finely-powdered quicklime, forms a good cement for joining spars and marble ornaments. A similar composition is used by coppersmiths to secure the joints and rivets of boilers, but they substitute bullocks' blood for the white of egg.—No. 3: Clean river sand 20 lbs., litharge 2 lbs., quicklime 1 lb., linseed oil sufficient to form a thin paste. This cement is applied to mend broken pieces of stone, as steps, &c.; and after a time it becomes exceedingly hard and strong. A similar composition has been used to coat brick walls, under the name of mastic.—No. 4: Iron borings 50 lbs., pounded and sifted; mix with 1 lb. of chloride of ammonium or sal-ammoniac. When it is to be used it should be mixed with as much water as will give it a pasty consistence. This is an excellent cement for stopping cracks in iron boilers, tanks, &c.—No. 5: Iron borings 4 lbs., potters' clay 2 lbs., powdered potsherds 1 lb.—Make into a paste with salt and water. This becomes very hard on drying.—No. 6: Chalk 1 lb. glue 2 lbs., paper 1 lb., boiled in water, and beaten to a pulp. Mix. Used for making architectural ornaments in relief.—No. 7: Whiting 16 lbs., sifted and heated to redness, black resin 16 lbs., bees' wax 1 lb. The last two are to be melted together, and the whiting to be stirred in during the cooling.—No. 8: Boiled linseed oil and red lead, mixed so as to form a thin paste.—Used by engineers.

ENGINEERS' CEMENT.—No. 1: Mix ground white lead with as much finely powdered red lead as will make it the consistence of soft putty.—No. 2: Mix equal parts with white lead and red lead, and add as much boiled linseed oil as is required to give it the proper consistence.—These cements are used for making metallic joints sound.

FRENCH CEMENT.—Gum water thickened with powdered starch. It is used by the French naturalists and artificial flower-makers. It keeps for a long time. A little lemon-juice is sometimes added.

MARINE CEMENT—MARINE GLUE.—Digest from two to four parts of caoutchouc, cut into small pieces, in 34 parts of coal tar naptha, promoting solution by the application of heat and by agitation. The solution, when formed, will have the consistency of thick cream; to this add 62 or 64 parts of powdered shellac, and heat the mixture over the fire, constantly stirring it until complete fusion and combination has been effected. Pour the mixture, while still hot, on plates of metal, so that it may cool in thin sheets like leather.—In using the cement, put some of it in an iron vessel, and heat it about 248° Fah., and apply it with a brush to the surfaces to be joined. It is said to make a perfect union of pieces of wood, and is recommended for use in ship-building—hence its name.

KEENE'S MARBLE CEMENT.—Gypsum is baked in the same way as for making plaster of Paris; it is then soaked in a saturated solution of alum—again baked to the same degree as before, and ground to a fine powder. It is now in a fit state for use. On being worked in the same way as plaster of Paris, it sets into a very hard composition, which is capable of taking a high polish. It may be coloured by mixing the powder with water

FOR MENDING STEAM-BOILERS, &c.—Mix two parts of finely powdered litharge with one part of very fine sand, and one part of quicklime, which has been allowed to slack spontaneously by exposure to the air. This mixture may be kept for any length of time without injury. In using it a portion is mixed into a paste with linseed oil, or still better, boiled linsed oil. In this state it must be quickly applied, as it soon becomes hard.

HAMELIN'S MASTIC CEMENT.—Mix 50 parts of silicious sand, 50 parts of lime marl, or pulverised Portland or Bath stone, and 9 parts of litharge. When the cement is used, it is to be ground up with linseed oil.

CHEMICAL AND ELECTRICAL APPARATUS CEMENT.—5 lbs. of resin, 1 lb. of bees' wax, 1 lb. of red ochre, 2 ozs. plaster of Paris. Mix together with the aid of heat.

LACQUER.—No. 1: Shellac 120 parts, sandrach 45 parts, mastic 35 parts, black resin 90 parts, dragons' blood 30 parts, turmeric and gamboge each 24 parts, rectified spirit 1000 parts. Digest until dissolved, then strain.—No. 2: Seed-lac 120 parts, sandrach 120 parts, dragons' blood 16 parts, gamboge 2 parts, turmeric 2 parts, Venice turpentine 50 parts, clean sand 150 parts, rectified spirit 1000 parts. Digest in a sand bath, and strain.—No. 3: Seed-lac, gamboge, and dragons' blood, each 120 parts, saffron 30 parts, rectified spirits 1000 parts. Digest with heat, and strain.—No. 4: Seed-lac and sandrach, each 120 parts, dragons' blood 15 parts, turmeric 2 parts, gamboge 2 parts, Venice turpentine 60 parts, spirit of turpentine 1000 parts. Digest with heat, and strain. Aloes is sometimes used to give it a darker colour.

COPAL VARNISH.—No. 1: Copal 10 parts, in coarse powder, clean sand 10 parts, camphor 1 part, rectified spirit 100 parts. Mix the copal and sand, and inclose them in a linen bag. Dissolve the camphor in the spirit, and put them into a cohobation apparatus, suspending the bag of resin near the top of the liquid. Boil the spirit until the resin is dissolved.—No. 2: Copal 90 parts, sandarach 180 parts, mastic 90 parts, Venice turpentine 75 parts, clean sand 100 parts, rectified spirit 1000 parts. Dissolve as No. 1.—Anime is generally substituted for copal in making these varnishes.

PICTURE VARNISH.—No. 1: Mastic Varnish. Mastic 300 parts, Venice turpentine 45 parts, camphor 15 parts, spirit of turpentine 1000 parts. Dissolve with heat.—No. 2: Copal, or anime, 60 parts, camphor 4 parts, oil of spike lavendar 180 parts. Dissolve with heat, then add spirit of turpentine, sufficient to give it the proper consistence.

LAC VARNISH.—Shellac 90 parts, Venice turpentine 4 parts, rectified spirit 500 parts. Digest until dissolved, then strain.

SEALING WAX.—The basis of the best sealing-wax is shellac and dammar, or anime resins, but inferior sorts are made with common resin. The light coloured resins, which will burn well, and flow in a semi-fluid state, are selected for receiving the light and delicate colours which are imparted by the admixture of certain pigments.—No. 1: Red Sealing Wax. Shellac 2 lbs., Venice turpentine 1 lb., vermillion, or best bichromate of lead 1½ lb. Melt the shellac and turpentine together with heat, and add the pigment as the mixture cools.—No. 2: Shellac 2 lbs., dammar or anime resin 4 lbs., Venice turpentine 1 lb., vermillion, or best bichromate of lead, 2 lbs. Mix as No. 1.—No. 3: Shellac 2 lbs., common yellow resin, 4 lbs., Venice turpentine 1½ lb., bichromate of lead 2 lbs. Mix.

Black Sealing Wax is made in the same way as the red, only substituting lamp-black for vermillion. In like manner other colours are imparted, by varying the pigment, and using chromate of lead, verdigris, green verdita, &c.

Gold Sealing Wax is made by using gold-coloured talc, or bisulphuret of tin.

Marbled Sealing Wax.—Melt in separate vessels a portion of wax of each colour intended to be mixed, and when they are partly cooled, mix them together, slightly stirring the mixture with a rod.

Soft Sealing Wax.—Bees' wax 4 lbs., Venice turpentine 1 lb., levigated bole, sufficient to give the required colour.

Bottle Wax.—Black resin 6 lbs., bees' wax ½ lb., ivory, or lamp-black, 1½ lb. Mix with heat. Venetian red, red lead, or bole, may be substituted for lamp-black.

BLUE VERDITER—REFINERS' VERDITER.—No. 1: The solution of nitrate of copper, obtained by the refiners in precipitating silver from nitric acid by heating it with copper, is poured, while hot, upon whiting moistened with water, and the mixture stirred until the whole of the copper is precipitated, when more of the nitric solution is added, until the desired colour is produced.—No. 2: The solution of nitrate of copper, as above, is precipitated with lime, which is added in the state of slaked lime. This precipitate, when nearly dry, is triturated with more lime, to develope the velvety blue colour, characteristic of verditer of the best quality. Process frequently unsuccessful in unskilful hands.

PRUSSIAN BLUE—BERLIN BLUE.—This pigment is made by calcining animal matter, such as dried blood, parings of horns, &c., with about one-eighth of its weight of carbonate of potash, in an iron retort, exposed to a dull red heat for seven or eight hours; lixivating the product of this operation, and adding common green vitriol, or sulphate of iron, to the lixivium. The precipitate is sometimes treated with nitric acid, which increases the depth and brilliancy of the colour. This, in its pure state, is said to constitute *Paris blue*. Mixed with other substances, such as alumina, gypsum, sulphate of barytes, clay, or starch, it forms the inferior kinds of *Prussian* and *Berlin blue*, also *Saxon* blue, *Erlangen blue*, Mineral blue, &c.

SAXON BLUE.—Dissolve 1 oz. of sulphate of iron and 8 ozs. of alum in 1 gal. of water; then add simultaneously solutions of prussiate of potash and of common pearlash, as long as any precipitate is formed. Collect and wash the precipitate.

PRINCE ALBERT AND THE NAVVIES.—Prince Albert, on the occasion of his visit to lay the foundation stone of the new docks at Great Grimsby, left 50*l.* to be divided amongst the 100 navvies, who, in lieu of the locomotive, drew the Royal train along the works.

RAILWAY CALLS.—The amount due in the present month of May is 1,071,088*l.*, against 3,246,848*l.* in the corresponding month of last year.

LONDON AND GRAVESEND RAILWAY.—This line will, it is confidently stated, be opened throughout on the 1st of July. The only impediment now existing is a portion of tunnel at Blackheath; and this difficulty, it is said, will soon be overcome. Steam carriages are now to be seen traversing the line as far as Lewisham on this end of the work, and more than one experimental trip has been made out of Gravesend towards Woolwich.

The Compendium of British Mining.

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REVISED, CORRECTED, AND ENLARGED FOR THE "MINING JOURNAL,"

BY J. Y. WATSON, ESQ., F.G.S.

GWENNAP DISTRICT.

WEST WHEAL BULLER is situate in the parish of Redruth, to the east of South Wheal Basset. In 128 shares, 10*l.* per share paid up; market value, 350*l.* Conducted on the Cost-book Principle. Pursers, Stephen and Richard Davey, Esqs., Redruth; underground agent, Capt. John Davey. The sett, which contains a great number of lodes, is 500 fms. long, and 300 fathoms wide, and is held on lease for 21 years, from 1849, at 1-16th dues, the lord being James Wentworth Buller, Esq., of Downes, near Crediton, Devon. The engine was put to work on the 11th December, 1848, and the shaft is now sunk about 6 fms. under the 14 fm. level, and which will produce 18 tons of ore per fm., for the length of 11 fms. Since the commencement in December last 3000*l.* worth of ores have been sampled, and 20,000*l.* worth discovered in the mine; and in July next the total outlay by the proprietors, 10*l.* per share, will be returned to them as a dividend out of the ores already sampled. Besides sinking the shaft, two adits are being driven south to cut the other lodes, with every apparent chance of success. Since the discovery of Wheal Maria no British mine has made the extraordinary progress of West Buller. Upon a mere trifling outlay, it has become in a few months the most promising mine in Cornwall, and shares have advanced in price from 50s. to 350*l.*, with every prospect of a still greater rise. The mine formed part of the Old Buller and Beauchamp, worked a few years since by Mr. Taylor, and abandoned by him, without, it is said, exploring the part of the sett now called West Buller, and which, on its abandonment by Mr. Taylor's party, was obtained by the present pursers.

[*To be continued in next week's Journal.*]

Mining Correspondence.

BRITISH MINES.

ASHBURTON UNITED.—The mining agent (May 1) reports—That the mines have the same appearance as when last reported, that the fresh bargains were set as mentioned, by which it is expected the quality of the stuff for the stamps will be materially increased.

BARRISTOWN.—The mining agent (April 27) reports—The lode in the winze, sinking in the bottom of the 16, is improving in size and value; it is now about 1 ft. wide, and producing from 12 to 15 cwts. of lead per fm.; the stopes in back of the 16 are much the same as last reported, producing about 12 cwts. of lead per fathom. In the adit end, east of the slide, the branches are more numerous and larger, with particles of lead mixed through the carbonate of iron; still I cannot call it the main part of the lode, unless the slide has caused so great a change. The stopes in the back of the adit level, west of the slide, are producing about 5 cwts. of lead per fm. We hope to ship a cargo of lead in the ensuing week.

BEDFORD UNITED.—The mining agent (May 2) reports—The ground in the engine-shaft is favourable for sinking. There has been no lode taken down in the 90 and 70 fm. levels east. The lode in Burley's winze, in the 90 fm. level, is from 3 to 4 ft. wide, and continues worth 80*l.* per fm. In the western winze, in the same level, there is not much alteration. We weighed at Morwelham, on Friday, February ores, 113 tons 7 cwts. 2 qrs., and sampled March ores, computed 115 tons (21 cwts.)

BRYN-AR-IAN (LEAD).—The mining agent (April 30) reports—The lode in the engine-shaft, 7 fms. below the adit level, yields 15 cwts. of ore per fm. The adit level, driving east from the cross-cut, is improved since last reported; the lode is 6 feet wide, with several small branches of ore throughout it. In the stope over the deep adit level, east of the engine-shaft, the lode is 7 ft. wide, and yields 1½ ton of ore per fm. The stopes in the back and bottom of the shallow adit level continues to yield 1½ ton of ore per fathom. We have completed the wheel-pit; but the castings of the crusher are not yet arrived, although we have been expecting them for more than a week past. I think the delay arises from the negligence of the captain of the vessel, and should they not arrive in a few days, I shall go in search of them.

CARADON UNITED.—The mining agent (May 1) reports—Last Saturday was our survey—I find the engine-shaft is down 5 fms. 5 ft. under the 38 fm. level; last month we sunk 2½ fms., at 14*l.* per fm.: the men have taken again at the same price, and are working with much vigour, and doing their work well; in the eastern part of the shaft we have the south wall of the lode, and I find it to be full 6 ft. wide, still composed of a strong gossan, prian, can, spar, soft iron, and portions of copper ore, still in a strong ponderous slate—ground much the same as when I reported last.

COMBLAWN.—The mining agent (May 1) reports—We have cleared in adit level 17 fms. 3 ft., and we have cleared in and about the engine-shaft 12 fms. In clearing these old workings we have found some good stones of lead, and some stones containing copper ore, very promising.

CWM ERFIN.—The mining agent (April 28) reports—Our 20 fathom level east will yield one ton of ore per fathom; the stopes from the end, 5 fms. west of ditto, are worth 12 cwts. per fm. The stopes west of the engine-shaft will yield about 8 cwts. of ore per fm. Our water is now in fork at the whim shaft, and we have been casing and dividing the shaft this week. On Monday next we shall put four men to drive west, and two to drive east. Our setting on monday last was as follows:—The 20 east, by six men 120*s.* per fm.; the stope from the east, 5 fms. west, by six men, 60*s.* ditto; the stope west of the engine-shaft, by two men, at 45*s.*; the end west of the hill, by two men, 25*s.* ditto.

DEVON AND COURTENAY CONSOLS.—The mining agent (May 1) reports—The lode in the end, driving west in the 40 fm. level, is composed of mundic, spar, and spots of copper ore. In the end driving north on the cross-course, in the 50 fm. level, we have intersected the lode to the east of it; the lode is 2½ ft. wide, on the south part of which is some good copper ore, saving work; the north part is composed of mundic, peach, and spar; the lode in the rise, in the back of this level, is 2 ft. wide, yielding 1½ ton of copper ore per fathom.

EAST CROWNDALE.—The mining agent (April 28) reports—Diamond's engine-shaft is to within 2 ft. 6 in. of the 28 fm. level, the ground is just the same as when last reported upon; so soon as this ground and a fork is sunk, we shall proceed to cut a plat, case and divide the shaft, &c. The 17 fm. level, east of Diamond's shaft, is poor, but of a most kindly description; the lode is composed of peach, elvan, spar, mundic, and spots of tin. The adit level west, on the course of Thomas's lode, is still poor, although the appearances are more favourable, and the ground seems to be changing for the better; the lode is composed of peach, killas, spar, and spots of tin; Tippet's stopes, in the back of this level, hold on without much alteration as to value and appearance; we are carrying 8 ft. of the north part of the lode, which is composed of peach, prian, spar, mundic, killas, and tin, and at present worth 40*l.* per fm.; Paul's stopes, to the east, look just as usual, the lode being composed of peach, prian, killas, mundic, and tin, worth upwards of 40*l.* per fm. Our engine, stamps, &c., are in good working order again. We intend to sample 10 tons of tin next Tuesday.

EAST TAMAR CONSOLS.—The manager (April 30) reports—I beg to hand you the following report on the operations of the past month, together with a statement of the bargains and pitches that were set on Friday last. The north end in the 70 fm. level was suspended about a fortnight since, and the men put to rise in the back for the purpose of ventilation. They have risen 5 fms. 2 ft. 6 in., and are now set to hole to the 60 fm. level, at 35*s.* per fm.—this completed, they will resume driving. The lode in the end is 3 ft. wide, producing good saving work; the lode in the south end in the same level is much improved, it is now 2½ ft. wide, and worth 4 to 5 cwts. of lead per fm.—the distance driven last month is 2 fms. 1 ft. 6 in.. The present stent is 1 fm., at 5*l.* per fm., by four men. The 60 end north has been extended 3 fms. 2 ft. 9 in., the lode is 2 ft. wide, worth 9 cwts. of lead per fm.—the present stent is 2 fms., at 4*l.* per fm., by four men; the south end in the same level has been extended 2 fms. 6 in.; the lode is 3 ft. wide, and worth 4 cwts. of lead per fm.—the stent is 2 fms., at 4*l.* per fm., by four men; the winze in the bottom of this level has been sunk 4 fms. 4 ft. 6 in.; there is water in it now, which prevents it being continued, but we expect the 70 end, which is but a little way behind it, will drain it in the course of a few days—there is a very fine lode in this winze. The 11 fathom level, north of Charlotte's shaft, has been extended 5 fms. 1 ft.; the lode in the end is 2 ft. wide, very kindly, and yielding about 8 cwts. of lead per fm. Church Lane shaft is cleared and made complete to the 26 fm. level (or 73 fms. from surface); the water is nearly up to this level, but is gradually going down, so that we hope to resume clearing the shaft very shortly; the lode in the bottom of this level, south of the shaft, has been stoped away, and we cannot get far in to examine it. There is some ground standing in the back that will set at a high tribute (say at 13s.). North of the shaft the level is extended 13 fms. 3 ft.; the lode in the end is about 2 ft. wide, composed of a good description of can, and stones of silver-lead ore—it is set to drive by four men, at 5*l.* per fathom. The back of the 70 fm. level south is set to four men at 11s. 6d.; ditto north, four men, at 10s.; the back of the 60 north, to four men, at 10s.; ditto south, four men, at 11s.; ditto south, four men, at 6s.; the back of the 46 north, to four men, at 12s.; ditto south, four men, at 13s.; ditto 35 north, four men, at 10s.; ditto 11 north, six men, at 9s.; ditto 26 south, four men, at 13s. The tribute department is looking well, and there is every probability of an increase in our returns.

HEIGNSTON DOWN CONSOLS.—The mining agent (April 30) reports—We have this day set Bailey's engine-shaft to sink below the 35 fm. level by six men. The lode in the 35 fm. level, east of shaft, is 5 ft. wide, of a most promising character, and from which some stones of copper ore have been broken. The lode in the 30 fm. level, west of shaft, is still large, but not yielding so much tin per fathom as last reported—its present value being about 10*l.* per fm. The eastern, or Hitchens's shaft, is set to sink by six men, the lode is 2 ft. wide, producing good stones of copper ore; the western shaft is set to sink by four men, the lode in which is 3 ft. wide, but at present yielding a small proportion of tin ore. The pitch in the back of the 30 fm. level, west of shaft (by four men), continues to turn out well, the lode at present being worth 25*l.* per fathom. The pitch in the bottom of the 20 fm. level, east of shaft, by two men, continues to yield good work, to the value of 15*l.* per fm., as also the pitch in the back of the said level, by two men.

HOLMBUSH.—The mining agent (May 1) reports—I beg to inform you there is no alteration in the 132 fm. level, either west or north of the diagonal shaft, since last reported, the water having been in at that level the last two days, in consequence of the leaky state of one of the boilers, which we are obliged to take out and repair with four or five new plates of iron, but we hope to finish it within a few days. In the meantime we are keeping the water a little below the 120 fm. level, with the steam arising from the other boiler, and to keep on the drawing and dressing, &c. The ground in the 120 fm. level south, east of Hitchens's shaft, is not so hard as it has been. The lode in the 120 fm. level south is 2½ feet wide, and worth 6*l.* per fm., leaving ground that will set at a moderate tribute in back and bottom of the level. The lode in the winze in the bottom of the 120 fm. level, west of the great cross-course, is 8 in. wide, producing stones of copper ore. The lode in the 110 fm. level south is 3 ft. wide, and worth 5*l.* per fm., leaving also productive ground over and under the level. In the 100 fm. level, north of the flap jack lode we still have a beautiful killas stratum.

HOLNE PARK.—The mining agent (April 30) reports—The men are driving on the course of No. 1 lode, which is from 6 to 7 ft. wide, composed of yellow and peacock copper ores of rich quality, from 18 to 30 per cent., underlying north, with prian, spar, peach, mundic, and gossan. No. 2 lode, which is from 4 to 5 ft. wide, is worth 15*l.* per fm, for copper. In the course of two months I hope to sample 200 tons of copper ores. There are seven other tin and copper lodes in the sett, which appear as kindly as the ones above-mentioned.

KIRKCUDBRIGHTSHIRE.—The mining agent (April 28) reports—The lode in Stewart's shaft is above 5 ft. wide, composed of spar and killas, with small spots of ore. The lode in the 50 end east is 3 ft. wide, composed of blende and sulphur, with a soft killas by the side, and spots of lead; the lode in the 50 west is 2 ft. wide, with fine stones of lead through it. The lode in the 40 west is 4 ft. wide—a little branch on the south side, worth 5 cwts. of lead to the fathom. We have another cargo of lead nearly ready to send off.

LAMHEROOE WHEAL MARIA.—The mining agent (May 1) reports—In sinking the engine-shaft they have met with a lode supposed to be the "J" lode, which has not yet been seen except at surface; of its width or size he cannot at present give an opinion; but as the water suddenly and largely increased on their cutting into it, he is of opinion it is an important lode, and will report on its quality as soon as cut through.

LLWYNMALEES.—The mining agent (May 1) reports—That the disordered ground in the London shaft has been penetrated, and, on the other side, the lode continues equally valuable; this shaft has attained a further depth of nearly 2 fms. since the pumps were put to work, and is continuing in speedy ground. In Oliver's winze the lode continues very satisfactory. In consequence of intersecting two or three streams of water, the further prosecution of this winze has become difficult, and it is advisable to suspend it for the present, until the London shaft is down deeper, when easy means can be taken to drain it. In the 14 fm. level the lode, after passing the disordered ground, continues of the same value, with every likelihood of improving for many fms. westward.

MENDIP HILLS.—The agent (April 30) reports—In the slag department we have, during the past week, smelted our pile of slags, about 21 tons 10 cwts., which produced rather more than 3 tons of metal; this, I am glad to say, I find quite equal in quality to any hitherto smelted. In Charter-house slag ground, it is gratifying to inform you, I find the beds of slag stuff to extend, and, what is also of importance, to widen very considerably as we proceed towards the eastern part of the valley; I cannot give you the correct breadth of the beds which we are now opening through, as we have not yet laid it completely open; it is, however, as far as we have opened, good work for yielding slags. In the Ubley slag ground I have nothing particular to communicate, in consequence of the continued heavy rains with which we have been visited of late; we have rather more water issuing from the stuff than we can easily contend with; I, therefore, thought it advisable to let the cutting remain idle, until we effect a communication from the shaft to the bottom of the valley, which I hope to see accomplished in the course of a week or 10 days; the masons are progressing favourably with the workshop.

METHA.—A mine captain (April 14) reports—I have been over the Metha ground, and I am convinced that you have part, if not the whole, of the East Wheal Rose lode in the engine-shaft; but I think that another portion of the lode will fall in with the limb you have further northwards, and form good ore ground. The data I had for my guidance was not so complete as I could have wished; I wanted the underground dialling of East Rose upon a plan showing the Metha engine-shaft; this would have given me the angles the different lodes have a tendency to form in the line of their bearing—a thing that cannot be ascertained by a surface inspection. I came to the conclusion that the Metha lode is a portion of the East Wheal Rose lode, from its direction, taking it from Metha northwards—from its being a large clay lode, filled with the same sort of material as the East Rose lode. It is true, that going to the south part of East Wheal Rose, and looking northwards, the East Wheal Rose seems to pass to the eastward of the Metha engine-shaft altogether; but I consider that this is a deceptive view, caused by an angle in the lode, which turns to the north-east, near North Rose Mine. In Oxnam's ground it appears to fall in to its general line again, and crosses the elvan-course in the Truro Charity Ground, without any marked deviation from its bearing, compared with it through East Rose ground. Speaking of the geological character of the country, and the influences in force in forming the metal in the lodes of East Rose, I believe these deposits of ore take place in and along a formation of secondary clay-slate, resting upon the southern declination of the hill of clay-slate upon which Penrose's engine is built, and upon which Foster's engine formerly stood. I am convinced that the stope of that hill, to the northwards, will be found to carry down the bunches of ore with it. The ore, I think, may be found in either or both of these measures, but the strongest or best portion would, I think, follow the line of junction of these measures, and be found in less body towards the surface. I should, therefore, recommend to sink the engine-shaft and drive a level—say, the 40—northward, and to drive a cross-cut east, to the limit of the sett opposite the engine-shaft, in the 20 fm. level, as it may be possible to find an orey part of the lode in that direction.

SOUTH TAMAR CONSOLS.—The manager (April 30) reports—Our new steam whim-engine being now complete, we are enabled to place all our underground operations in a full course of working, and I have the pleasure to inform you that the following bargains and tribute pitches were set on Saturday:—To drive the 80 fm. level south, 3 fms. stent, by four men, at 35*s.* per fm. and 5*s.* in *l.* tribute—this end has been extended during the past month 4 fms 3 ft.; the lode is 2½ ft. wide, and will yield from 8 to 9 cwts. of rich silver-lead ore per fm. Since we first commenced operations this level has been extended 21 fms. 3 ft. on the course of a good productive lode, and left ground (whole, we believe, to the surface) that will work at a low tribute. To drive south in the 70 fm. level, 2 fms. stent, by four men, at 5*l.* 5*s.* per fm.; the lode is altogether about 18 in. wide, and composed of capel and fluor-spar, with good stones of lead, but not rich; we expect to have better ground shortly, and a favourable change in the lode will, in all probability, take place in the course of the ensuing month. To clear the 90 fm. level south, 5 fms. stent, by four men, at 10*s.* per fm.; ditto north, 5 fms. stent, by four men, at 7*s.* 6*d.* per fm.; and the 30 fm. level south, 5 fms. stent, by four men, at 10*s.* per fm. There is some good tribute ground still standing between the 80 and 90 fm. levels, and, by clearing the [illegible] it away to great advantage. By clearing the 30 fm. level there is little doubt but we shall be able to take up the principal part of the water south of the shaft, and which at present goes does down to the 70. We also set three pitches in the back of the 80 fm. level; the first to eight men, at 3*s.* in *l.*: the second to four men, at 6*s.*; and the third to four men, at 8*s.* in *l.* We have about 5 tons of ore to surface, and shall commence dressing in the course of this week. We calculate on raising about 25 tons of ore in the month, worth from 17*l.* to 18*l.* per ton. The shaft is cleared 6 fms. below the bottom of the 90 fm. level, and before the expiration of the month we expect to see the bottom level.

SOUTH WHEAL TRELAWNY.—The mining agent (April 28) reports—The engine-shaft is sunk 3 fms. 3 ft. below the 30 fm. level, the ground in which is favourable; and should it continue, greater progress will be made in sinking 20 fms. deeper than was first anticipated—water much as usual.

TREGORDEN.—The mining agent (April 30) reports—The lode in the north end is about 18 in. wide, with lead throughout; the south end is just the same for lead as when Capt. Bryant was last here. Our stopes are looking well (or rather the lode); in some places it is very large, and good for lead. We have now a good deal of work for the stamps. In consequence of the heavy rain this week, there is at present a few feet of water in the north shaft, but we hope it will drain off in a few days; the lode is very promising, although not rich.

TRELEIGH CONSOLS.—The mining agent (April 27) reports—At Garden's shaft, below the 113 fm. level, sinking in the country south of the lode. In the 113 fm. level, west of Garden's shaft, the lode is 4 ft. wide, with mundic, jack, and spar. The 100 fm. level, west of ditto, is suspended; the lode is 2 ft. wide—no mineral. In the 90 fm. level, west of ditto, the lode is 18 in. wide, producing 1 ton of ore per fm., and is looking kindly. In the 80 fm. level, west of ditto, the lode is 1 ft. wide, with stones of ore, and looking more promising. In the 60 fm. level, west of ditto, the lode is 3 ft. wide, with stones of ore, mundic, and jack. At Parent engine-shaft, below the 20 fm. level, sinking in the country north of the lode. In the 20 fm. level, east of the engine-shaft, the lode is 2 ft. wide, with stones of ore, and looking kindly; in the said level, west of ditto, the lode is 1 ft. wide—disordered by a cross branch. In the adit east, on the middle lode, the lode is 2 ft. wide, producing about 1½ ton of ore per fm., and is looking very kindly. The 20 fm. level cross-cut south, to cut the middle lode, being as promising as any other part of the mine.

WEST WHEAL JEWEL.—The mining agent (April 30) reports—In the winze, in the bottom of the 57 fm. level, west of Williams's cross-course, on Wheal Jewel lode, lode 2 ft. wide, worth 14*l.* per fm. In the 47 fm. level, west of Williams's cross-cut, on same lode, lode 18 in. wide, worth 9*l.* per fm. In the deep adit, west of Williams's cross-course, on the same lode, lode producing stones of ore. The stopes in the back of the 12 fm. level, west of Pryor's winze, on Tolcarne tin lode, lode worth 15*l.* per fm.; the stopes east of this winze, in the back of the 12 fm. level, worth 13*l.* per fm.; the stopes in the bottom of this level, east of Tregoning's shaft, worth 15*l.* per fm.; the stopes in the bottom of this level, east of Tregoning's winze, worth 10*l.* per fathom—these stopes are working on tribute.

WHEAL MARY ANN.—The mining agent (April 30) reports—The lode in the 50 fm. level, south of Barratt's shaft, is 4 ft. wide, and worth 15*l.* per fm.; the stopes in the back of this level are looking well. The lode in the 40 fm. level, south of the shaft, is 1½ ft. wide, and worth 12*l.* per fm.; the stopes in the back of this level are looking very well. Pollard's shaft is sunk to the depth of Barratt's 50 fm. level, and the men have commenced cutting a plat in that level. The lode in the 40 fm. level, south of this shaft, is 2 ft. wide, producing good stones of lead, but at present it is a little disordered by an elvan course; in the same level north it is 2 ft. wide, and worth 12*l.* per fm.; the stopes in the back of this level are also looking very well, in some places producing more than a ton of lead per fm. The lode in the 30 fm. level, south of the shaft, is split in branches, and very much disordered by a slide; the stopes in the back of this level are producing a fair quantity of lead. The lode in the 15 fm. level is still small, with spots of lead. The parcel of lead, computed 67 tons, was sold on the 19th inst. to the Tamar Smelting Company, at 18*l.* 14*s.* 6*d.* per ton.

WHEAL SARAH.—The mining agent (May 3) reports—We have sampled a few tons of lead and silver ores, rather inferior cleaned or dressed; but notwithstanding it brought about 20*l.* per ton, and we expect our next parcel will far exceed this, as it will be more clear of iron.

WHEAL TREHANE.—The mining agent (May 2) reports—We have now cut into the lode in the 68 fm. cross-cut 15 in., but not yet cut through; this part is composed of capel, can, and mundic, with good stones of lead; in east from shaft about 10 ft., and the underlay, as far as seen here in the end, is at the rate of 10 inches per fm. westward; we shall cut through with all possible speed, and as soon as this is done, I will report immediately; I hope it may be done by to-morrow morning, but the water being rather troublesome, it may take until to-morrow night. There is nothing of importance to mention of any other part of the mine.

WHEAL TRELAWNY.—The mining agent (April 30) reports—The ground in Phillips's shaft, sinking under the 72 fm. level, is still favourable. The lode in the 72 fm. level, north of this shaft, is 3 ft. wide, producing one-half ton of lead per fm.; in this level south the lode is 2½ ft. wide, producing 12 cwts. of lead per fm.; the lode in the rise, in the back of this level, is similar to my last report. The lode in the 62 fm. level north is 4½ ft. wide, producing a ton of ore per fm.; the stopes in the back of this level are producing a fair quantity of ore. At the north mine, the lode in Smith's shaft is 4 ft. wide, composed of can, spar, mundic, and lead, worth one-third of a ton of ore per fm. The lode in the 30 end, north of this shaft, is small, but producing good stones of lead. The lode in the 40, north of this shaft, is 2½ ft. wide, producing one-quarter of a ton per fm. The lode in the winze, near Trehane boundary, is 3 ft. wide, producing 8 cwts. of lead per fathom.

WHEAL VINCENT.—The mining agent (May 3) reports—We are breaking some very rich tin indeed from the stopes on the south lode. We hope to set our wheel at work the latter part of another week. There is no material alteration in other parts of the mine since my last.

WHIDDEN.—The mining agent (May 1) reports.—That as all efforts have been now for some time concentrated, in order to intersect the great north lode from the deeper levels of the old workings, considerable progress has been made, and a cross-cut of 11 fms. completed, which, after cutting various mundics and crystallized branches dipping towards the north lode, has now very much the appearance of being in its vicinity, from the wetness of the ground.

FOREIGN MINES.

BAROSSA RANGE MINES (SOUTH AUSTRALIA).—The following letter has been received by the directors from their managing agent:—

Angaston, Dec. 11.—At Lynedoch Valley, Simon's shaft is down 12 fms. and has cut water. The lode is large and strong, holding a branch of solid (grey and yellow) copper ore, 12 in. wide; its quality is very good. I have this day assayed three samples, which I brought home on Saturday last.—No. 1, 52 per cent.; No. 2, 49 per cent.; No. 3, 41½ per cent. It looks very promising indeed; but we cannot break a great quantity of ores yet, because of the water and hard ground, but intend to sink a few feet deeper, and cut through the lode and then drive on the copper part of it, and make advantages to take away the ores, and, as soon as we can, sink a new perpendicular shaft as deep as a 20 fm. level (if the water will permit), where we shall cut the lode, and also in the 12 fm. level, holing to Simon's shaft for the benefit of air. On this new shaft we intend erecting the whim that was at Greenock Creek, which will enable us to draw water and work copper from both 12 and 20 fm. level. We have now about 32 tons of ores at this mine, 18 of which is dressed rough; but, before it is shipped, I intend to increase the per centage of it by a very cheap method, which will lop off part of the carriage and freight. The ores are exceedingly hard and tough; consequently, we are obliged to soften them before we can make them pass through a ¼-inch riddle, the proper size for taking a sample. At Mount Barker we have 12 tons of good ore broke by three men, by way of search, in the last three months. This, we hope, will pay the whole of our expenses in looking over the company's lands. Mr. David Randall and myself have lately been there; since which your colonial board have fixed on selecting 200 acres at the Bremer, one and a half miles from the company's mine, as a site for your mining operations in that place. We intend, as soon as possible, to send home about 40 tons or more; about 8½ tons from Greenock Creek, 12 from Mount Barker, and as much as we can from Lynedoch Valley in bags, all of which will be marked and numbered. I hope ere this you have got the dues lowered to 1-14th. We are taking the materials from Greenock Creek as fast as we can, and have been obliged to keep a man and boy there to watch and send them off. We are hard pressed for want of cash, and have been hoping to receive the 500*l.* Mr. Browne referred to three months ago. The whim rope is come; 1100 souls landed last week in 36 hours—emigration is brisk, plenty of men coming; but not money enough yet for the number of hands. We have had a fine wet winter, and the crops of corn are beautiful and abundant.—P.S. Mr. Browne's letter of 9th August, 1848, is just at hand, for which I am very thankful indeed.

COPIAPO MINES.—The following is the mine report for January:—

Copiapo, March 1—*Checo Copper Mine.*—This mine, I have pleasure in stating, is improved since I last addressed you, and I am in hopes will continue to do so for some time to come. The winze referred to in my last, sinking below the 12 fm. level, west of new shaft, continues good; the lode is 2 ft. 4 in. wide, and of 35 per cent. ore; the end driving west, in this level, is producing some good ore; the vein is about 10 in. wide, 6 in. of which is not less than 25 per cent.; in the end driving east, in this level, we have a large lode 3 ft. wide, and producing some excellent ore, but not yet so free from stony matter as I could wish to see it; still it will pay well for driving. In the 20 fm. level, west of Victoria shaft, we are driving an end, to communicate with the winze sinking below the 12 fm. level near the new shaft, and have, since my last, had some little improvement here also. When we commenced it was very poor, but we have now some very fine stones of ore in the lode, which induces me to hope that we shall have good productive ground between this end and the shaft, which is more than 30 fms. These are all the places being wrought at present in this mine, except the stopes in the back of the 12 fm. level, which are still giving good ore.

San Pedro Copper Mine.—We have only four pickmen in this mine, and when I was there, a few days since, they were obliged to wheel and draw the ore and stuff they were breaking, not having a single spar in the mine. We are still driving the 10 fathom level here, and, in the last month, have broken a few hundreds of ore from it, but not enough to pay the cost of driving; but I shall not discontinue it while it looks as promising as at present. The other three miners are working on the stopes, which have produced as well, or better, than I had expected, and I am happy to state that our English miners, one and all, have behaved exceedingly well; not one has attempted to take the least advantage of the scarcity of labourers, but, on the contrary, have done all in their power to assist in every respect.

Esperanza Copper Mine.—We have still two new workings, because the lode, although poor, looks so inviting, that I would like to try it a little longer, but the two natives have given notice to leave, unless I raise their wages; this I cannot do, for I should have all the Checo people making a similar application; so I suppose we shall be obliged at the end of the month to suspend operations for the present. No ore dressed this month.

Produce for January at Checo, 35 tons; San Pedro 20 tons—total, 55 tons.

Silver Mines.—Al Fin Hallada.—On the 9th ult. I arrived at the mine, and on the 10th ordered the lode in the chiflen No. 3 to be broken down, in which there was about 3½ varas desued; the preparations for and the breaking down occupied four days, and the ore produced was about 9 to 10 tons; three tons of rich ore will, I think, produce more than 2000 marcs, or (say) 4000*l.*, and the other 6 to 7 tons of second class will, I think, produce another 1000 marcs, or 2,000*l.*—this is nearly 4000*l.* per fm.; and I am happy to state that, when we had finished breaking down what was desued, the lode in the bottom and ends was richer and larger than when we commenced, or at any part of the Quebra; this has been taken from the deepest part of the mine by 3 fms. We are now breaking down in the other workings, which are producing ore of a fair quality; but, as we had only just began when I left, I cannot state what the quantity will be.

San Jose del Carmen.—We have in the last month been sinking a new windlass shaft to cut the lode about 20 fms. below the surface, and also bringing in an adit level, by which we shall be able to wheel away and draw by horse power all the ore—this will render us infinitely more independent of the native labourers at all times. The adit level is being driven on the lode, which is about 3 ft. wide, and producing some excellent ore. We are driving three levels besides—two north and the other south—for the purpose of opening ground; but are not breaking out half the quantity of ore that we could, had we troops to carry it to the city. This, however, will not last many months, or, at least, we have reason to hope so; for when another spring comes, there is reason to believe that we shall have more rain, and a greater fall of snow in the Cordilleros, as it has been observed by the oldest inhabitant here that we seldom, if ever, get two bad years following. We have still from 60 to 70 tons of ore in this mine, that we have no means at present of transmitting to the city. I cannot report the quantity extracted in February, as I left the city on the 21st, but I believe it will pass 20 tons; I will, however, give you all the particulars in my next.

Mercedites.—We have only three pickmen here; but we are working at two different points. In one we have a beautiful lode, 2 ft. wide; 6 in. is rich ore. The last six cargas brought to the city gave 70 mcs.; but what we are breaking out now is much better. This mine has not yet been measured, or had its landmarks fixed, owing to the intendente's indisposition. He has not been able to attend to his duties for nearly a month; but I have been informed that the measurements will be resumed in the first week in April.

Carmen Alto.—This mine will, I am persuaded, make one of the best in Chili. I have not the management of it yet, but shall after a few days. When I saw it on the 12th February, there was a beautiful looking lode, as much like that of the Al Fin Hallada, before it became so rich as anything I ever saw; but there were but four pickmen to work the three mines—this, the Flomizo and Colorada—where at least a 100 should be employed; so there is nothing to report on. On my return, I am determined to get men to work these mines, because they are measured, and, I believe, no dispute with any one.

La Gloria.—This mine I have charge of, but I am afraid to work until the measurement be made; for, if we find anything good, some one will be sure to raise a dispute and law suit; this is sometimes done with a view to getting a borra or two given to the opposing parties, to quiet them.

Loreto.—This has been measured, and we have sent provisions, &c., to commence working; but we must first build ranchos. This is also a most beautiful sett.

	Tons.	Company's Share.
Produce at Al Fin Hallada for Feb.	10	2½ tons
" " San Jose del Carmen (say).....	20=30	4½

Gold Mine.—Esperanza.—This is one of the prettiest setts I have ever seen, with three beautiful lodes in it; two nearly perpendicular, and the other has an inclination or underlie, of about 45° towards the former lodes, and will intersect them at about 20 and 30 fms. deep, being only 5 fms. apart, where I expect a bunch of rich ore, for they have some stones with visible gold in each of them now, and a great part of these veins would pay well for returning, if carried to Puquios, ore that will give about 5 ounces of gold to the ton. I have bought 15 barras, or 24 parts of this mine. We are now building ranchos, and shall set to work boldly here in a week or two.

Mercedites.—This mine is about half a mile from the former one, and has two fine large veins from 2 to 3 ft. wide, all of which show beautiful samples of gold when washed. I believe this will make a rich and lasting mine. You have 21 barras in this.

Santo Domingo.—This is an adjoining sett of equal importance, and has three lodes; also that I believe will yield good ore and be abundant. I shall set this to work on my return to Copiapo. You have 20 barras in this mine.

Chacabuza.—This is situated between the Esperanza and Santo Domingo, and has a fine lode, but I do not like it as well as the others: still, as it cost nothing, I shall keep it up to prevent bad neighbours coming in, and try at the measurement to have it added to the sett of Mercedites and Santo Domingo.

Discubridora Gold Mine.—This mine is looking well; and when the four months have passed for which I engaged to manage for the poor men who gave it to the company, I would recommend its being sold, as one barra is too small a share to be held by the company; whatever it may sell for will be profit, having cost nothing; besides, it is two leagues distant from our other mines.

You will clearly see that if you work all these mines, which I sincerely hope you will, that the duties connected with the management of them will be heavy. I have visited them six times in four months, 30 leagues from the city, besides the regular visits to the copper mines and estates.

GUADALCANAL SILVER-MINES.—The following is an extract of a letter from the captain of the mines to the board of directors, dated April 20:—

We have this day lowered some part of the pitwork in the diagonal shaft, and I hope soon to be able to alter the opinion entertained by some of the City gentlemen, of our inability to unwater the mine lower than the 30 fm. level; this, with them is a great mistake; they are not aware of the preparations requisite for unwatering diagonal shafts that are apart from a perpendicular opening; the cross-cut, 8 fms. long and 15 ft. high, which was necessary, was not the work of a day or a week; putting in the wrench, cutting gronnd, and putting in wood-horse of sufficient strength to lower 10 tons at a time, which was also necessary, of course took us some time—the whole to be done with six men. The water might have been forked in the 50 fm. level without making this work so strong or substantial, but when in that level we should be at a stand-still. We must not forget the mine will have to be unwatered much below this level, for which I have made the work sufficiently strong; you may be assured not a moment has been lost, I believe everybody to be doing their best, and I hope shortly to be able, by good luck, to see the 50 fm. level. I believe ere this, you are made acquainted that the men have arrived at the mines; six of them have been put to clear up the Azuaga shaft, and which we found collared over about 3 fms. below the surface, and partially full of water, but which I hope to be able to draw out; six have been securing the San Antonio shaft, which for the time is completed, and are now clearing the 17 fm. level towards the Azuaga shaft, which I hope they will be able to communicate with shortly; as I before said, in doing this we should let down the water (if any) in the Azuaga shaft, and then be able to drive the 17 fm. level south under the gossan in the new pertencia, La Bonita, where, I firmly believe, there is a second Guadalcanal, or Pozo Rico; with the slight acclivity going south, this level will come in below the gossan about 22 fms. from surface, have about 20 fms. to drive under it, and I should think, from indications we see, was upwards of 100 fms. in length; I hope this level will enable us to speak with more certainty of the worth of so promising a looking concern as this part of the mine; six men are sinking a 10-yard shaft in the Bonita, still further south (agreeable to the Spanish laws, before they give us formal possession), where there is a continuation of the same gossans; the other two men are assisting the surfacemen, as we cannot yet get to clear the 31 fm. level, south of the Pozo Rico, to communicate to the San Antonio, but as soon as the work in the diagonal shaft is completed, the men shall be set about it."

BLAENAVON IRON AND COAL COMPANY.

The annual meeting of this company was held at the offices, Pancras-lane, London, on Friday, the 27th April.

JOHN MASTERMAN, jun., Esq., having taken the chair, said he was sorry to have to communicate to them the absence of the chairman, who was abroad on business; he was consequently obliged to take the chair on this occasion, and would rely on their kind support.

Mr. JOHNSON (the manager) read the advertisement convening the meeting, and also the report of the directors. The accounts were also read to the meeting.

The CHAIRMAN said he had two or three observations to make to the meeting—first, respecting the profits, although they were small; yet, if at the same time they would take into consideration the circumstances under which they were produced, he thought they ought to be considered very satisfactory. For as much as three months nearly, out of the year, all the furnaces were out of blast, and all the fixed charges remained the same; although they had no produce, they had to bear those fixed charges. In addition to this, they had to contend with a continual fall in the price of iron, and a by no means satisfactory state of trade; therefore, even if there had been no profit, he thought it would have been satisfactory to have been able, under such circumstances, to pay all charges and interest on borrowed capital, and to have maintained the works in perfect efficiency. The profit made was the more satisfactory, because it was not imaginary; the accountant had most carefully tested it, by treating the concern as he would do in partnership accounts, and had not only made out the profit which appeared from the sales and cost of manufacture, but he had taken up the liabilities and assets of the company in every way, and contrasted them with the preceding year's accounts; thus, by applying this corrective test, it turned out that the real profit was 772*l.* 5s. He trusted this explanation would tend to show the proprietors that the board had been going on sound data in calculating these profits. (Hear, hear.) In the second item of 425*l.* 14s. 5d., he thought there could be no objection to that outlay, as it was in order to render a portion of the roads available for locomotive power. He was happy to inform them that a locomotive engine was ordered, and that the evil which had for so many years weighed them down was likely to be soon removed; they might look to a new era in the progress of the concern, when locomotive power could be substituted for the enormous quantity of horses they were obliged to keep. (Hear, hear.) He (the chairman) had the pleasure to say, that the whole of the outlay, in the last year, amounted to 1000*l.*, including this expenditure for locomotive power, and that they were not going on spending money, but charged at once to revenue all those expenses for carrying on and keeping up their undertaking. (Hear, hear.) The make would show the advantage they had derived from additional capital. During the time, however, that the furnaces were out of blast the directors had taken care to effect what improvements they could—so that, after they are again put in blast, they will be found to be in a much better condition. In the interval, they had accumulated a larger stock of mine, and their cost was considerably reduced; and these advantages could be further secured by the proprietors placing working capital in their hands. It need hardly, perhaps, be wondered at that, after the reverses they had seen in the iron trade, and the absence of a dividend for some years, the proprietors should exhibit great reluctance to advance additional capital when called upon to do so; but he must confess that he did feel somewhat mortified, that when a committee, emanating from themselves, and who had studied the matter in the most careful way, recommended the advance of further capital for the interest of the concern, so many of the proprietors still hesitated. In saying this, of course, his remarks only applied to those gentlemen who had the means of making such advances. (Hear, hear.) He hoped the proprietors would regard these observations in the best spirit, as in making them he had no other view than the improvement of their property, which he was persuaded could be best done by subscribing a further amount of capital. Since the report of Mr. Hampton was furnished to the committee, the directors had determined to risk a little before the proprietors subscribed their money in order to effect such desirable objects; and they had every reason to congratulate themselves on the introduction of the suggested improvements. They were now proceeding at a diminished cost; and, although the cost of horseflesh still going on was rather serious, yet they had now decidedly turned the corner, and a very moderate state of the iron trade would put them to rights. He was sure this company would never see such times again as they had gone through—so that, on the return of only a moderate state of trade, to say nothing of that very high degree of prosperity which the iron trade sometimes enjoys, he was convinced that the profits would be such as would satisfy the proprietors. (Hear, hear.) He regretted the absence of their indefatigable friend, Mr. Wheeley, who had devoted himself, in conjunction with Mr. Hill and Mr. Philip Jones, to the best means of making the company prosperous. Mr. Wheeley was one of the most practical men connected with that company; and he was happy to say, that Mr. Wheeley did take the most sanguine view of their future prosperity, and had written a letter to Mr. Philip Jones to that effect. If Mr. Jones thought he was authorised to communicate its contents to the meeting, he was sure it would be very gratifying to them to hear it. In conclusion, he would request them to bear in mind, that the reduction of cost was the main point they were all striving at. He knew they could not command prices; but by keeping down the expenses in ordinary times, when good times arrived they might naturally look for large profits. He would now move the adoption of the report, which had just been read to the meeting.

Mr. EARLE asked if the difference in the charge for horses was from an improved system, or the lower price of provender?—The CHAIRMAN said mainly from the lower price of provender.

Mr. ZWILCHENBART would like to know what stock they had?—The CHAIRMAN said, the balance-sheet would show the extent of the stock, and the amount on hand.

Mr. ZWILCHENBART observed, that it showed an increased profit, but 4000*l.* was an enormous deduction from the gross profits.

The CHAIRMAN said, that this charge was upon the whole amount of sales, and might be in the pockets of the shareholders, if they would but be their own bankers.—Mr. PROCTER, if not out of order, would like to ask if any arrangement had been made with Lord Abergavenny? Part of the property being leasehold, and wearing out from year to year, the prolongation of the lease was a matter of great moment to the shareholders. If it was not a question the directors could answer, he would merely ask if the attention of the board had been directed to the subject?

The CHAIRMAN said, that Mr. Philip Jones had taken most interest in the matter, and had considered how Lord Abergavenny could be dealt with. There might probably be no great difficulty about it; the board had no wish to be in too great a hurry, as they considered it to be a matter in which great discretion must be used. Their lease had 20 years to run, so that they were not at his lordship's mercy just at present.

Mr. PHILIP JONES would say a few words as one of the inspectors, in conjunction with Mr. Hill and Mr. Wheeley. As they had only commenced their examination a few months, it was not to be expected that a very great improvement could take place in so short a time; but still, as they would see, a very great improvement had taken place, in which Mr. Wheeley was the principal agent. Devoting, as he did, about four days in the week out of the six, and spending, as he did, about four or five hours each day at the works, he was certainly competent to judge of their future prospects. That gentleman was notoriously a very retiring man, and disliked very much to appear in public, which was the reason of his not being present that day to explain things, which he could do so much better than himself. Their principal attention had been devoted to improving the roads, purchasing an engine, and erecting ovens, at a cost of about 6000*l.* He fully expected that, in a very short time, they would have their principal roads adapted to the use of the locomotive engine, in addition to which, they would have completed their ovens, amounting to about 40, the combined effect of which would most certainly assist, to a large extent, in reducing the cost of iron. (Hear, hear.) These two items he expected to see completed very shortly. Regarding the horseflesh, that was certainly a most awful item in the cost of iron at Blaenavon, amounting to no less a sum than between 14,000*l.* and 15,000*l.* a year. (Hear, hear.) With such a drawback, it was difficult for them, or any company, to prosper; it had in some measure been attributed to the works being old ones, and for a great length underground. They were now endeavouring very much to curtail the roads by cutting off the different angles; they were also doing away with the levels, and sinking pits, by which they would save a number of horses. He had no doubt that these plans would succeed, but they would require some time, and before the expiration of the year, the saving in horseflesh must be very considerable indeed. The number of horses they employed at present was no less than 300, so that they might readily perceive how very disadvantageous to the works that item of horseflesh must be. (Hear, hear.) The make at the furnaces had very greatly increased; he believed very few furnaces could make iron as they had made it. In a week they had manufactured as much as 166 tons, and without hot-blast. With regard to the lease, which was of some importance, and had induced him to take a good deal of trouble; he did not think it at all improbable, before the next meeting took place, they would be in possession of a lease, or the agreement for a lease. He was intimately acquainted with Lord Abergavenny's agent, and from a conversation he had with him, he thought they would be able to succeed in getting this lease, which would, of course, add very considerably to the value of their property. The present one had about 20 years to run; therefore it was a matter of importance to know when they would be able to get this new lease, which had been so long delayed. They had a plan in view, which he decidedly thought would bring about a renewal of the lease, so that he need not say any more on that subject. As to the sale of coal, they had been unfortunate in that sent to the country unconnected with the works; they had a fine coal property, but sales at higher prices were very limited. He thought a reduced price of coal, and in the tonnage dues, on the road from Abergavenny to Hereford, would effect something; he had an interview with the secretary to the Hereford roads some time ago, when he agreed on the policy of reducing the tonnage considerably. Provided they could reduce the price of the coal, and get this tax reduced, they might have a trade, seeing what was now going on from Hereford to the Forest of Dean, where some of the foresters send coal 25 miles in waggons and carts, and competed with this company, which had tram-roads from Abergavenny all the way to Hereford. He thought, therefore, with due attention, they might realise a very considerable profit from that part of the business, which they had hitherto not done to any great extent; he thought the profit on the sale of coal was not above 2000*l.* a year. Now, he should be very much disappointed, if they did not double that amount at least. (Hear.) In conclusion, he begged to say, that he and the other gentlemen would pay the greatest attention to the works during the next 12 months, by the end of which he hoped to be able to show them that their expectations had been fully realised. (Hear, hear.)

After some other observations from proprietors, the three retiring directors—Messrs. Hill, Kennard, and Warden—were unanimously re-elected, and the report and accounts adopted.

The thanks of the meeting were voted to Messrs. Hill, P. Jones, and Wheeley, the inspectors; to Mr. Johnson, the manager; to Mr. Booth, the secretary; and to Mr. Masterman, jun., for his valuable services in the chair, and to his colleagues at the board.—The meeting then adjourned.

THE MEXICAN COMPANY.

The annual meeting of this company was held at the offices, Great Winchester-street, City, on Thursday last.

JOHN OLIVER HANSON, Esq., having stated that the chairman of the company was detained by his duties on a committee of the House of Commons, took the chair, when Mr. MAUDE (the secretary) read the following report and balance-sheet:—

In the report which was presented to the proprietors at the last annual meeting, the directors held out the expectation, that the operations of the company at their mines in Oaxaca, would proceed, during the past year, with more security and advantage than they had done during the previous year (1847). Owing, however, to the war with the United States, and the disturbances and interruptions occasioned thereby, this expectation has not been realised; so far from it, indeed, that the very reverse has been the case; the country, notwithstanding the cessation of hostilities, in consequence of the signing of a preliminary treaty of peace (subsequently ratified) continuing, as Mr. Fenochio advised the directors, "in the most horrible state of anarchy, the guerrilleros having all turned robbers, and plundering in all directions." To such a degree, in fact, did this state of insecurity and depression of trade continue, that a total suspension of intercourse with the capital (Mexico) took place; Mr. Fenochio, in his letter of 6th of May, having stated that "it was said that it would require 1000 men to protect a conducta from Mexico to Oaxaca." The consequence of all this was, that Messrs. Innes and Co., the company's agents at Oaxaca, who for some time past had been in the practice of purchasing the company's silver, as it was produced, at a fair price, gave notice of their inability to continue their purchases after the 31st of May, unless at such a reduction in the price as Mr. Fenochio did not consider himself warranted in acceding to. An arrangement, therefore, which nothing but the most urgent distress could have induced Mr. Fenochio to resort to, was entered into with the miners and others employed in the company's service, as also with the buscones, for the purchase of their ores, on payment of one-half only of their claims as they accrued, postponing the settlement for the balance until the 30th of September last. This system, however (styled in Mexico "prestamos," or loans), was subsequently found to work so ill (the best of the workmen, although at first they had agreed to it, preferring to remain in idleness, or threatening to leave the district, which many of them actually did, to submitting to it any longer), that it was obliged to be abandoned; but as by this time the intercourse with Mexico had been re-established, and supplies of money obtained from thence, the ordinary mode of operations was resumed at the mines, and has continued without interruption ever since, though without the former energy, many of the best workmen having quitted the district; so that, to use Mr. Fenochio's expression in his letter of the 6th of June—"Now that I have got money I cannot get the men back again." He was, however, endeavouring to do so, and, by degrees, succeeding.

The directors advert, with regret, to these unfavourable circumstances to account for the falling off in the supplies of ore during the first half of the year, and the consequent decrease in the yearly production of silver. The high price also which, during the disturbances in the country, many of the articles of supply for the mines and reduction works (especially salt, so indipensable for barrel amalgamation) had attained, has also had a serious effect on the operations of the year. It will not occasion surprise, therefore, that the result of all these discouraging and disadvantageous circumstances should terminate in a loss on the year's operations, as per balance-sheet, now presented, of 83171 6½; or, at 4s. per dollar, equal to 634*l.* 7s. 3d. As this amount, however, includes an allowance for the London charges of the year of 500*l.*, the actual loss on the operations at Javesin for the past year is reduced to 134*l.* 7s. 3d., which, all things considered, is, perhaps, as little as could reasonably have been expected.

The effect of all this, however, had been so to reduce the available means in the hands, or under the control, of Mr. Fenochio, as to induce him urgently to press on the directors for a further supply of funds; and the directors, anxious to meet his views, consented, in June last, to allow him to redraw on them for the 500*l.*, which, as stated in last year's report, he had remitted to them, to cover the London charges for 1847, included in his balance-sheet of profit and loss for that year, which amount, in the report just alluded to, the directors contemplated reinvesting in an Exchequer bill, to be added to the trustees' indemnity fund, from which it had previously been abstracted for the London charges of that year (1847), to meet which the directors have now to report that they have, in order to provide for Mr. Fenochio's bill (drawn in pursuance of the authority above alluded to) sold another 500*l.* Exchequer bill, so that the trustees' indemnity fund is now reduced to the small amount of 500*l.*, besides the cash balance now under their control, of 376*l.* 15s. 11d., which is about adequate to the London charges for the remainder of this year. Mr. Fenochio, in the course of his correspondence with the directors during the past year, having made repeated and urgent applications for an increase of funds to enable him to prosecute the undertaking with more energy and effect, which application, with the exception of the credit for 500*l.*, transmitted to him on the 1st of June last (as already noticed), the directors have not considered it expedient to comply with.

They deem it proper now to submit to the proprietors the correspondence which has passed on this subject, not doubting that they will concur with them in the propriety of refraining from making any further call, especially as, by the accounts of the negociation to the close of last year, the balance of available funds then amounted to 87979 (about 1600*l.*). The stock of quicksilver, on the scale of last year's consumption, was equal to several years supply, and they had on hand 150 cargas of salt, besides a good stock of iron and other useful stores, and without any debts, contracts, engagements, or other liabilities, of what nature soever.

The correspondence here alluded to consists of copies of the following letters—viz.: No. 1, dated 1st June, from the directors to Mr. Fenochio; No. 2, 5th August, 1848, Mr. Fenochio's reply to ditto; No. 3, 30th Sept., from the directors to Mr. Fenochio; No. 4, 5th Dec., Mr. Fenochio's reply to ditto; No. 5, Feb., 1849, transmitting the accounts of the negociation to the close of the past year; No. 6, 6th March, from Mr. Fenochio to the directors, received by the last mail from Mexico.

The directors now submit the balance-sheet of the Oaxaca ledger for the past year—the balance of which transferred to stock account, amounts to 8113,080 5, or, at 5s. per dollar, 22,616*l.* 2s. 6d., which includes the estimated value of the stores on hand, on the 31st of December, as from inventory, now submitted to the meeting, amounting to 828,936, or 5787*l.* 4s. The plant, consisting of haciendas, machinery, &c., is valued at 879,247, or 15,850*l.*—together, 21,637*l.* 4s. They likewise submit, in conformity with the Deed of Constitution, the balance-sheet of the company's accounts here, from its commencement to the 31st of December last, examined and attested by the auditors; and have to report that Samuel Prior, Esq., and James Robinson Maude, Esq., two of the directors, and William Walmesly Terrington, Esq., one of the auditors, are in turn, by settled rotation, to go out of office; but being eligible, now offer themselves for re-election to the offices of directors and auditor respectively. They have further to announce with regret the resignation and subsequent decease of George Lewis Hollingsworth, Esq., one of the directors of the company.

The Mexican Company, from its commencement in March, 1825, to 31st Dec., 1848.

RECEIPTS.

Capital—For the amount received for deposits and calls, from the commencement to 31st Dec., 1848	£392,410	0	0
Profit and Loss—Balance on the 31st Dec., 1848, consisting of dividends, interest, and profit on sales of Exchequer Bills and Stock, on the indemnity fund account, discount on prompt payment for stores supplied, and other items	2,229	1	11
Total	£394,639	1	11

DISBURSEMENTS.

Commissioners in Mexico—For the amount transmitted to, and drawn for by them, from the commencement of operations, in 1825, to the 31st Dec., 1848	£361,333	13	6
General Expenses*—For the amount disbursed under this head, for salaries, rent and taxes, law charges, advertisements, &c., from the commencement to 31st Dec., 1848	31,638	4	8
Fixtures and furniture in the offices, valued at (including recent repairs under the lease)	155	7	3
Trustees Indemnity Fund—For 1000*l.* Exchequer Bills, valued at par	1,000	0	0
Stamp Account—For transfer stamps on hand	16	10	0
Cash on hand on 31st Dec., 1848—viz.: at the bankers, 389*l.* 16s. 10d.; at the Bank of England, 78*l.* 0s. 8d.; petty cash account, 27*l.* 9s. 3d.	493	6	9
Total	£394,639	1	11

* Mem as to general expenses in 1848:—

The total on the 31st of Dec., 1847 was	£ 31,146	17	4
Ditto of this year (1848), as above	31,638	4	8
The difference constitutes the expenses of 1848—say	£ 491	7	1

Mr. MAUDE also read the correspondence between the directors and Mr. Fenochio, in respect to the conclusions which they had come to in the report just read to the meeting.

The CHAIRMAN said, he had very little difficulty in addressing them that day, as every proprietor had the opportunity, ever since the establishment of the company, of seeing the dispatches as soon as they arrived from Mexico; so that they were as well able to judge of the state of the concern as those that were sitting on his side of the table. Mr. Fenochio had had, as they must perceive, a very anxious and trying time of it during the last year, in managing their affairs in Mexico. Their funds had now got very low; but Mr. Fenochio was in a position to carry on the concern, at all events, for the present year. If their funds should be so much reduced at the termination of this year, as not to admit of his remitting them the amount of their expenses here, the directors would apply to the proprietors for their determination as to how they should act with respect to the future proceedings of the company. For the present year, he thought, they might take the chapter of accidents; and, if it should turn out that they had no success, they must take into consideration, at the next meeting, what course should be adopted. In Mr. Fenochio's last letter he stated that they had discovered a small "cinta," or thread of ore, in the pertenencia of Jesus Maria, from which they had extracted, prior to February, 14 quintals of a ley of 14½ ozs. per quintal; during the following months it increased to 24½ quintals of a ley of 16½ ozs. per quintal; the whole being in new or virgin ground. In the course of a few weeks Mr. Fenochio expected to be able to report more accurately the value of this discovery.

Mr. WILSON (a director) said, that Mr. Fenochio, in June last, had a balance in hand of only $3300; but on the 8th of March his balance was $8400, so that they were in a far better position than in June last. He had also on hand a good stock of quicksilver, salt, iron, and other useful stores.

Mr. WHEELER understood it to be the decision of the board that no further funds should be sent out.

A DIRECTOR stated, that the board had already given their reasons why they did not recommend it.

The CHAIRMAN thought there might probably be some improvement in their affairs. Mr. Fenochio had a good deal of property, on the other side, but it was not available, except for mining purposes; their haciendas were valuable; their works and stores were valuable; the plant he was afraid was not valuable, unless to such parties as would carry on the concern. If any gentleman wished to say anything, he should be happy to hear him; if not he would move the adoption of the report.—Mr. WEEDON seconded the motion.

Mr. PRIOR (a director) said, the loss at the mines, last year, was only 130*l.*, which was but trifling after all.

Mr. WHEELER observed that, if they were to lose 130*l.* next year as well, with the expenses going on here, they would soon have very little left.

Mr. WILSON (a director) said, they hoped their prospects, this year, would not be so disastrous as they had been in the last year; the war appeared to have deranged everything, but that was not the case at present. (Hear, hear.)

Mr. WEEDON thought that was a reason why they might probably do better.

The report was adopted unanimously.

Mr. WHEELER then proposed that Samuel Prior, Esq., and J. R. Maude, Esq., the directors who retired, be re-elected.—Mr. WEEDON seconded the motion, which was adopted unanimously.—William Walmsley Terrington, Esq., was then re-elected an auditor of the company.

Mr. WILSON (a director) said he should wish the proprietors to bear some testimony, on this occasion, to Mr. Fenochio. However unfavourable the report they had been compelled to lay before the meeting, still, in the opinion of the directors, Mr. Fenochio's exertions at Oaxaca were deserving of their approbation. (Hear, hear.) They saw that he could derive no advantage from breaking up the concern, and, therefore, considered that he had done everything for the best, and with strict honour and integrity. Mr. Fenochio still expressed a sanguine hope that some success would attend him this year, and that the concern would be placed in a more prosperous condition than at present. The directors thought he was entitled to their thanks, inasmuch as, after being 22 years in their service, they had never had a real cause to be displeased with that gentleman. He would, therefore, move that the thanks of this meeting be given to Mr. Fenochio for his conduct under the very trying circumstances in which he had been placed during the past year. (Hear, hear.)

Mr. CHANCE cordially seconded the resolution, which was passed unanimously.

Mr. GODFREY said he was one of the original proprietors, and still held his shares. During that time he had witnessed the zeal and exertions of the board of directors, and he still hoped that their endeavours would be crowned with the success they merited. (Hear, hear.) He should, therefore, move the cordial thanks of the meeting to the directors.

Mr. WEEDON seconded the motion, which was agreed to unanimously.

The CHAIRMAN returned thanks on the part of himself and the other directors, for the kind manner in which that compliment had been moved and passed by the shareholders. He was also one of the original proprietors of this company, and held a large stake in it, which he believed was the case likewise with his brother directors. They had always considered their interest the same as that of the proprietors; they had worked hard for many years for the general good of the concern, without putting the shareholders to a shilling expense on their account. (Hear, hear.) On this occasion, when the directors were unable to lay before them so satisfactory a report as they could have wished, it was the more gratifying for them thus to receive the thanks of the proprietors. (Hear, hear.)—The meeting then separated.

WHEAL BLENCOWE MINING COMPANY.

A general meeting of adventurers was held at the mine, on Saturday, the 21st April, when a statement of accounts was presented, showing—By sale of tin, February 7 (less dues), 131*l.* 14s. 5d.; March 12, 178*l.* 10s. 6d.; April 11, 174*l.* 14s. 6d.; carriage, 5*l.* 16s. 9d.; arrears of calls, 13*l.* 5s.; on account of call made 30th January, 1849, 153*l.*=657*l.* 1s. 1d.—Balance due to purser 30th January, 184*l.*; cost for Dec., Jan., and Feb., 394*l.* 16s. 1d.; merchants' and other bills, 77*l.* 13s. 6d.: leaving balance of 11s. 6d.—The accounts, having been examined, were passed, and a resolution for proceeding against shareholders in arrear was adopted. The following report was presented:—

The south east and west lode is now opened on in the bottom level, a distance of abou 7 fms., its size averaging about 18 in., composed of capel, mundic, spots of copper, and a little tin; it is embedded in a light clay-slate, which is indicative of mineral. I am as strongly of opinion as ever, that this lode will yield an abundance of tin, when we shall have opened on it to a greater extent. Since our last meeting, the old lode (north and south), in the 15 fm. level, has been more productive of tin than my most sanguine expectations led me to hope for. Eight men have been employed in working on it, and, during the last three months, they have broken upwards of 30*l.* worth of tin, and have laid open at least 1000*l.* worth more. The productiveness of this lode induced us to resume the sinking of the new shaft, in order that a communication may be opened between it and the 15 fm. level, to enable us with greater facility to bring the tinstuff to surface; and as this shaft will be of advantage in prosecuting the deeper workings, we have suspended driving the end of the bottom level for a short time, but hope to be in a position to resume operations there again in about a month. The east and west lode has been recently intersected in the 20 fm. level, and we have opened a communication from it to the winze; the lode in this level is about 2 ft. big, and yields some very good work; we shall immediately extend on it east and west, and sink a winze towards the 30 fm. level. Our principal object now must be to lay open a greater extent of ground; for in proportion to the extent on which the lodes are developed will be our capabilities for increasing the quantity of tin for market. I have great pleasure in referring the adventurers to the returns for tin for the last quarter, and hope that those returns will, as I ventured in my last report to predict they would, inspire us with good hope for the future.

BALLESWIDDEN.—At a meeting of adventurers, held at the mine, on Monday last, the accounts for January and February were produced by Richard V. Davy, Esq., purser, which showed a profit for the two months of 114*l.* 7s. 6d.; whereupon it was resolved to make an immediate dividend of 10s. per share, being 81*l.*, leaving balance to profit and loss account of 33*l.* 7s. 6d.; which, with former balance of 72*l.* 17s. 6d., now makes the profit and loss account 105*l.* 5s. to credit of adventurers. The agents' reports of the state of the mine were never so satisfactory; several of the lodes having considerably improved, and on the whole holding out most cheering prospects.—*Penzance Journal.*

NORTH POOL.—At the two-monthly meeting of adventurers, held at the mine, on the 1st inst., the accounts were examined and passed, showing—Balance last account, 28*l.* 13s. 9d.; Copper ores sold, 1101 tons 10 cwts. 2 qrs. (less lord's dues, 291*l.* 0s. 2d.), 4074*l.* 4s. 2d.; tin and carriage (less dues, 2*l.* 7s. 2d.), 33*l.* 10s. 10d. = 4136*l.* 8s. 9d.—Labour cost and materials, January and February, 1864*l.* 13s. 2d.; dividend, at 22*l.* 10s. per share, 2250*l.*: leaving balance in hand, 21*l.* 5s. 7d.—For the next account 1172 tons of ore have been sold, realising, after deducting dues, 5224*l.* 10s. 11d.

WHEAL SPEARNE.—At a meeting of adventurers, held at Balleswidden account-house, on Monday last, Richard Pearce, Esq. (the purser), presented the accounts for Jan. and Feb., showing a balance in favour of adventurers of 35*l.* 15s. 10d. A dividend of 1*l.* per share was declared, leaving remainder of balance in purser's hands. The appearances of the mine are very satisfactory.

CORNISH STEAM-ENGINES.

[Abstract from Browne's *Cornish Engine Reporter*, from March 20 to April 20, 1849.]

PUMPING-ENGINES.

Number reported	24
Average load per square inch on the piston, in lbs.	12·9
Average number of strokes per minute	5·3
Gallons of water drawn per minute	5555
Average duty of 18 engines—being million lbs. lifted 1 foot high, by the consumption of 1 cwt. of coals	63·4
Actual horse-power employed per minute	1023·7
Average consumption of coals per horse-power per hour, in lbs.	4·0

ROTARY-ENGINES—WHIMS.

Number reported	19
Number of kibbles drawn	68,107
Average depth of drawing, in fathoms	118·1
Average number of horse-whim kibbles drawn the average depth, by consuming 1 cwt. of coals	57·7
Average duty of 14 engines, as above	15·6

STAMPS.

Number reported	7
Average number of strokes per minute	12·7
Average duty of 4 engines, as above	41·8
Actual horse-power employed per minute	99·4

PUMPING-ENGINES DOING HIGHEST DUTY.

Fowey Consols	80-inch single	*Millions* 98·7
Par Consols	80-inch single	94·2
Par Consols	72 and 36-inch Sims's combined	89·7
Great Polgooth	80-inch single	86·7
West Fowey Consols	60-inch single	75·4
Callington	30-inch single	73·3

WHIM-ENGINES.

Fowey Consols	22-inch double	*Millions* 29·5
Fowey Consols	22-inch double	25·8
Par Consols	24 & 13-inch Sims's combined	24·3
Great Polgooth	22-inch double	19·2

STAMPING-ENGINES.

Tincroft	36-inch double	*Millions* 45·1
South Caradon	26-inch single	40·4
Tamar	30-inch single	38·7
Great Polgooth	26-inch double	18·5

Adelaide Mining Company.—It has been already proved to demonstration, that our highly-favoured colonial possessions in South Australia abound in mineral wealth, and that in point of richness and position, it offers to the British capitalist a most safe and certainly remunerative enterprise, and a most legitimate mode of investment. With these impressions, founded upon a thorough knowledge of the colony, a few gentlemen in England have formed an association under the above title, whose prospectus will be found in our advertising columns, for the purpose of working some of the numerous mineral lodes which have been discovered in the colony, on which little or no trial has been made, but many of which may, from the present moment, when so many circumstances of a favourable nature combine, be worked with the most beneficial results. The distinguishing points of the principles in the prospectus, on which the promoters found the basis of successful operations, are the careful avoidance of every unnecessary expenditure of the funds of the company, either in obtaining a useless extent of territory, on the one hand, or in paying those high premiums usually obtained by land jobbers on the other; and also that the party proposed to act as superintendent is not only well qualified from previous mining experience for the employment, and deserving of the confidence of the adventurers, in the management of their distant enterprise, but will also himself become interested in the success of the undertaking, by taking on his own account a considerable number of shares. Economy is to be the principle of action, and with this view it is proposed to confine the management and responsibility to a limited number of efficient directors in London and agents in the colony. The promoters have themselves had considerable experience in mining in South Australia; and we have no doubt the business of the association will be conducted on such a sound and legitimate basis, as to render the results remunerative in a high degree, and productive of great advantages to the colonial public.

Copper Smelting in South Australia.—Since the first discovery of the cupiferous riches of this colony—to which circumstance may be attributed, in a great measure, its rapid advancement in wealth, population, and prosperity—the question of smelting the ore on the spot has very naturally undergone the most elaborate consideration of scientific parties there, who are more or less interested in the increased value which would accrue to the mines, and advantages to the colony, could the proprietors succeed in smelting operations, and export the merchantable metal direct to the markets of India, China, and other parts of the Pacific, instead of sending the ore containing from 20 to 40 per cent. produce 12,000 miles to this country to be smelted, in which case the freight is paid, for that distance, upon from 60 to 80 per cent. of a valueless refuse; and if, under such circumstances, the mine has been able to pay 200 per cent. per two months, its value must be increased to an incalculable extent on smelting the ores on the spot. We now find, from the Australian papers, that, after the most careful consideration and preparation, these desirable works will shortly be carried out. The English Patent Copper Company—Messrs. Schneider and Co.—have made all the necessary arrangements with the South Australian Mining Association, through their colonial agents, Messrs. Walters and Williams, for smelting the Burra Burra ores; and the patents of Mr. Penny and Mr. Owen, which we have before noticed, will now be brought into practical application. Messrs. Thomas have already been successful, on a small scale, in smelting the ores of the Mount Barker district; and the only question as to continuous success is now how long, in the absence of coal in the colony, the native forests will supply fuel commensurate with the smelters' requirements. The English Patent Copper Company are erecting their principal works at the Burra Burra Mines, and, in a few months, four furnaces will be in active operation. Captain Rodda is stated to have discovered a simple process for reducing the most refractory substances in connection with the oxides and carbonates of copper, particularly in the poorer ores, by which the practice of assaying will be rendered much less difficult, and far more certain, in ascertaining the value; and which process he intends to make public for the benefit of the colony and its mines. The increased value of these mines, from smelting on the spot, may be inferred by the fact, that Messrs. James and Ferris, of Sydney, purchased 200 tons of copper ore at Kapunda, in consequence of having perfetly succeeded, at their new smelting-works in New South Wales, on a parcel of Burra Burra ores, the metal from which they sold, in the Calcutta market, at 110*l.* per ton.

Mr. Burr and the Directors of the Burra Burra Mine.—It will be in the recollection of those of our readers who are interested in Australian news that Mr. Burr, the general superintendent at the Burra Burra Mine, had been somewhat rudely dismissed from his situation without any notice, and also without the slightest knowledge on his part of having committed any act on which the directors could justify this totally unexpected proceeding. The terms on which Mr. Burr had been engaged were 700*l.* a year, house, fuel, and water, for three years, and 200*l.* for passage money for himself and family at the expiration of the period. Mr. Burr having been but a year in the office, naturally felt surprised and indignant at the treatment, and entered an action for the recovery of his full salary for the whole term of the agreement. The case came on for hearing in the Supreme Court, Adelaide, on the 31st October last, and lasted three entire days. The charges against Mr. Burr were, that he was not capable of assaying the ores, which was part of his duty; and that he had disobeyed his orders not to pay for any ores under 20 per cent. produce, while he had repeatedly paid the men for richer ore than what they actually produced, to the great loss of the company; and also that he had allowed cottages to be built in an unworkmanlike manner. Mr. Fisher, for Mr. Burr, proved that he had not sought the appointment, but that he had been continually pressed by the directors to give up his appointment as deputy surveyor of the colony, and accept the superintendence of the Burra Burra Mine. The evidence was very voluminous, and after an impartial summing up on the part of the judge, the jury retired and were absent about 40 minutes, when they returned a verdict for the plaintiff, damages 1523*l.* 3s.—the full amount claimed, with the exception of the 200*l.* passage money. Mr. Burr's character was so highly esteemed by the Government that they had made him a justice of the peace for the Burra Burra district, an honour never before conferred on a superintendent; and the jury in their verdict recorded their conviction that nothing had transpired in the slightest degree to impeach his character for integrity previously enjoyed in the colony. At the sittings in Banco, on the 10th November, Mr. Gwynne, on the part of the company, moved that the verdict be set aside, and a nonsuit entered, on the ground of a misjoinder on the part of Mr. Kingston. It appeared that this gentleman, who was not a director at the time of Mr. Burr's appointment, had been made one of the defendants, and Mr. Gwynne during the trial had urged the illegality of this proceeding, which he said was done to deprive the company of a principal witness. He now contended that Ayers, the secretary, was never lawfully authorised to sign the contract for Mr. Kingston, so as to make him primarily liable; his liability as a shareholder had nothing to do with it. He then referred to the Deed of Settlement respecting the directors' power to appoint and remove officers, and maintained that making Mr. Kingston a defendant was a misjoinder, which could be taken advantage of under the general issue. After a short conversation, a rule *nisi* was granted. Whether, in point of law, it was irregular to include Mr. Kingston, or otherwise, as a defendant, we cannot say; but the evidence throughout was clear and explicit, and the jury could not, from the nature of the oaths they had taken, and in accordance with justice and common sense, pass any other verdict than the one recorded. These technicalities may be pretty pastime for the courts of law and the bar, but cannot alter the stern facts of the case; nor in this instance should we think it would disturb the honest verdict of a jury, founded strictly on the evidence before them.

The Coal Company.—The business of the Newport Coal Company, which, according to previous agreement, was discontinued on the 1st of May, is resumed, and will be carried on as the firm of the Newport Red Ash Coal Company; Messrs. T. Prothero, W. S. Cartwright, and Joseph Jones, we learn, ship on their own account respectively. The company have reduced their price to 7s. 6d. per ton, the former price having been 9s.—*Monmouthshire Merlin.*

West Wheal Treasury.—T. P. Row was killed here by falling away from the ladder from the 40 to the 70 fm. level. He had been at work with a companion at the latter level, when the blast put out their lights, and they were ascending in the dark when the accident occurred.

Wheal Pink.—John Martin was killed here by the sudden explosion of a blast.

South Shields.—W. Harrison was killed by a fall of roof in St. Hilda's pit, and a companion, T. Scott, very much injured; they remained seven hours before it was discovered that any accident had happened.

Byer's Green Colliery.—John Hall, in ascending a pit at this colliery, had his leg so torn and lacerated, that he died shortly after.

NEW PATENTS.

J. Wilson, Old Bond-street, tailor, for improvements in trusses.

J. G. Wilson, Millman's-row, Chelsea, engineer, for certain improvements in the manufacture of glass, and in machinery and apparatus connected therewith.

A. Munkittrich, Manchester, merchant, for an improved composition of matter, which is applicable as a substitute for oil, to the lubrication of machinery, and for other purposes. (Being a communication.)

J. Dalton, Hollingworth, Cheshire, calico-printer, for a certain improvement or certain improvements in printing calicoes and other surfaces.

T. W. Buller, Esq., Sussex-gardens, Hyde Park, Middlesex, for improvements in the manufacture of earthenware.

M. Kennedy, Manchester, cotton spinner, for certain improvements in the method of packing cops of cotton and other fibrous materials, and in apparatus connected therewith.

T. Whaley, Chorley, Lancaster, coal proprietor, and R. A. Lightoller, of the same place, cotton spinner, for certain improvements in machinery or apparatus for manufacturing bricks and tiles from clay or other plastic materials.

S. Wooller, Bradford, York, manufacturer, for certain improvements in machinery or apparatus for weaving.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

J. Goodman, M.R.C.S., Manchester, hydro vapour bath.

S. Grew, and J. Crawford, Rugby, cramp for coupling and uncoupling carriages.

S. Reston, Aldersgate-street, life-preserver braces, with air-tight mouth-pieces attached—adapted for other uses.

S. Fox, Gracechurch-street, telescopic pencil or pen-holder.

W. Breynton, Norfolk-street, Strand, portable oven.

M. H. Crichton, Edinburgh, apparatus for securely holding brooches.

M'Adam, Brothers, and Co., Soho Foundry, Belfast, beater or scutcher for dressing flax and other fibrous plants from the straw, and separating the fibre from the woody parts.

R. Leslie, 39, North Frederic-street, Edinburgh, cutting machine.

J. Graftey, Sydney-alley, Coventry-street, fastening for shirt-collars, garments, &c.

J. W. Blackburn, Cheapside, zetetique prize shirt.

J. Guise, Margaret-street, Wilmington-square, gas-burner and glass-holder.

T. H. Pindar, Cheltenham, combined coat and waistcoat.

T. Stucley, Turner-street, commercial-road, loo-table.

Meyer, Joseph, and Meyer, 21 and 24, Bow-lane, umbrella and parasol manufacturers, parasol parisienne.—*Mechanics' Magazine.*

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 194 3	Belgian, 4½ per Cent., 82½
3 per Cent. Reduced Ann., 90¾ 1½	Dutch, 2½ per Cent., 50¾ ½
3 per Cent. Consols Ann., 92¼ ⅜ ⅛	Brazilian, 5 per Cent., 78½ 9¾
3½ per Cent. Ann., 91¾ 2 1¾	Chilian, 3 per Cent., 53
Long Annuities, 8¾	Mexican 5 per Cent., 32¼ ⅞ 2
India Stock, 10½ per Cent., 246 5 7	Russian, 5 per Cent., 104½ 5
3 per Cent. Consols for Acc. 92¾ ¼ ⅜	Spanish, 5 per Cent, 17¾ 18
Excheq. Bills, 1000*l.* 2d. & 1½d. 44 47 pm.	Ditto 3 per Cent., 33¾ 4½

Mines.—A fair proportion of business in mining shares has been done this week, and the prospect of an improved market continues to present itself.

Several shares in Devon Great Consols have changed hands at rather under our present quotations, and negociations still pending for others. During the week these mines have generally improved. In sinking the engine-shaft at Anna Maria a very considerable improvement has taken place, the lode being worth, at least, 70*l.* per fm. In Hitchins's shaft, at Wheal Josiah, the lode is now worth upwards of 100*l.* per fm.

Trelawny, Bedford United, and Tamar Consols, have been in demand at an advance on our minimum quotation of last week. Tincroft is represented as continuing to produce new and important discoveries, and is evidently becoming a permanent and productive mine.

From private letters, we learn that in the Kirkcudbright Mines a rich leader of lead, 2 ft. big, has been cut in the 50 fm. level.

South Basset, North Pool, Levant, West Caradon, South Wheal Frances, and West Buller shares have been in request at our former quotations. We learn that a very rich lode has been cut in Levant in the 190 fm. end going east, consisting of copper and tin.

Shares in the following mines have changed hands during the week:—Devon Great Consols, Kirkcudbright, Great Rough Tor Consols, East Pool, Wheal Trehane, Cwm Erfin, Trelawny, Bedford United, West Caradon, Condurrow, Heignston Down, Esgair Lli, East Tamar, Camborne Consols, South Tamar, Wellington, Mary Ann, Mendip Hills, Kingsett and Bedford, Tamar Consols, South Wheal Basset, &c.

Wheal Bawden, a very promising silver-lead mine, adjoining the old Treburget, which, a few years since, returned vast quantities of rich silver-lead, yielding as much, we understand, as 300 ozs. per ton, has been purchased by a highly respectable London company, who have commenced operations by driving a deep adit, to cut a promising lode running parallel with Treburget. Several shares have changed hands this week, at a fair premium.

At the North Pool bi-monthly account meeting a dividend of 22*l.* 10s. per share was declared on January and February workings, leaving a balance of 21*l.* 15s. 7d. to the credit of the company, with ore bills coming due. The profits for the two months amount to 2243*l.* 1s. 2d.

At the West Caradon two-monthly meeting a dividend of 50s. per share was declared. The profits on the two months (January and February) amounted to 736*l.* 10s. 5d., leaving a credit to the company of 1273*l.* 2s. 7d., from which the above dividend is paid. The mine is represented to be in a flourishing state.

At the Wheal Blencowe meeting the accounts for December, January, and February, showed a balance of 11s. 6d. in favour of the company. The agents report of the mine is highly satisfactory; the south east and west lode is indicative of early improvement, whilst the old lode (north and south) has proved very productive; upwards of 300*l.* worth of tin have been broken during the past three months, and it is calculated that 100*l.* worth has been laid open; operations are being continued for developing the lodes and commanding a regular and increased return for the market.

At the Balleswidden two-monthly meeting a dividend of 10s. per share was declared, leaving a balance of 1057*l.* 5s. to credit of the next account. The profits on the two months' (Jan. and Feb.) working amounted to 1143*l.* 7s. 6d. The mine is represented in an improving position.

At the Wheal Spearne meeting a dividend of 1*l.* per share was declared, leaving a balance of about 100*l.* in the purser's hands.

At the annual meeting of the Blaenavon Iron and Coal Company, the chairman furnished a clear and encouraging statement of the proceedings and prospects of the company, showing most satisfactorily the advantages that would accrue from an increased capital; and which object, we have no doubt, will be attained by the shareholders, in arrear with their late call, immediately responding to the appeal; by which co-operation, the produce can be returned with great advantage at the present period. The general position of the company is far more favourable than we anticipated finding it.

At the meeting of the Mexican Company the report was not very favourable as to the operations of the past year. A discovery of some interest had, however, been made, and hopes are entertained of future improvement. From the balance-sheet, it appeared there was a loss on the year of 634*l.* 7s. 3d.; but as this includes the London charges of 500*l.*, the real loss at the mines is but 134*l.* 7s. 3d.; certainly a small sum, when the untoward events of the past year in Mexico are considered.

We have this morning received the statement of accounts presented at the two-monthly meetings of Wheal Mary Consols, West Caradon, Gonamena, and Craddock Moor Mines, but too late to give the detailed particulars, which shall appear in our next. In Wheal Mary Consols there was a loss on the January and February workings of 162*l.* 18s. 1d., leaving a balance against the adventurers of 74*l.* 10s. 6d. In West Caradon there is a profit on the two months of 736*l.* 10s. 5d., leaving a balance in hand of 1273*l.* 2s. 7d. In Craddock Moor there is a balance in favour of 22*l.* 4s. 7d.; and in Gonamena the balance is against the adventurers to the amount of 25*l.* 5s. 10d.

In foreign mine shares there has been considerable business transacted during the week. St. John del Rey has been in great request, and an advance has taken place. In Australian shares there has been a demand, and a number have changed hands. Barossa Range, United Mexican, Copiapo, and Bolanos, have also been done; and inquiries for Guadalcanal have taken place, in consequence of favourable reports having been received, and several bargains have been effected.

It will be seen by the advices received by the Barossa Range Company, that at Lynedoch Valley, in sinking Simons's shaft, they have cut the lode, carrying a leader 1 ft. wide, of solid grey and yellow copper ore, which, by an assay of these samples, yields an average of 47 per cent. In consequence of the increase of water and hardness of ground, their progress is rather impeded, but arrangements are making for efficiently developing the lode. At Mount Barker 12 tons of good ore have been broken in the course of brief operations; about 40 tons may shortly be expected home, as the first shipment from these mines, and with the able and efficient management of the home and local boards, there is little doubt of the Barossa Range taking a prominent and permanent position among the mines of Australia.

The dispatches received by the Copiapo Company report that the Checo Copper Mine had improved since last report, both in the 12 and 20 fm. level. The San Pedro Mine continues productive, but not at that per centage which will enable any important transmission as yet. The want of labourers is felt very much; the produce for the month is 55 tons of copper. The silver and gold mines are represented in a very productive position—a full report will be found in another column.

Accounts from Valparaiso, received on Wednesday last, mention a great increase in the production of the silver mines—$400,000 worth having been received during the month preceding the departure of the mail. Large amounts of gold and silver had also arrived at the port, the total quantity being, during that period, $1,250,000, of which $650,000 were in gold from California. This influx of the precious metals had reduced the value of silver to some extent.

About 80 tons of copper regulus has arrived in the Thames, per the *Agricola*, from Sydney, being a portion of the 350 tons on the way home, belonging to the North British Australian Company.

Very large arrivals of spelter have taken place during the week from Hamburg. The *Perthshire* brought nearly 5000 plates; the *Vanguard*, 1935 plates; and the *Peggy*, 3663 plates.

By the East India Mail, which arrived here on Wednesday, we learn that the metal market of Bombay continues in a favourable position; the demand for all metals is good, and that of some sorts the stocks were short, and only moderate in others.

The Royal Mail steamer, *Medway*, arrived at Southampton on Wednesday, with the usual West India and Pacific mails, and bringing on freight $48,986 in silver, $361,948 in silver bars, gold coin and gold bars, value $400,965, of which $100,000 is Californian gold, melted into bars at Lima: also British coin, value 308*l.*, pearls, value 500*l.*, and platina, value 283*l.* By the arrival of the United States Mail steamer, *Hermann*, at Southampton, last night, intelligence of the safe arrival of the *California* at Panama was received. The advices from San Francisco are of three weeks later dates then previous accounts, and fully confirm all the "extraordinary" statements from the gold regions; provisions were, however, becoming much more reasonable in price, in expectation of a large increase in the supplies.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver coin to Rotterdam, 5000 ounces; ditto to Belgium, 2000—Silver bars to Rotterdam, 113,000—Gold coin to Belgium, 2375.

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars .... per oz.	£3	17	9	New dollars .... per oz.	£0	4	10½
" Portugal pieces....	0	0	0	Silver in bars (standard)	0	4	11¾

THAMES TUNNEL COMPANY

The number of passengers who passed through the Tunnel in the week ending April 28, was—No. of passengers, 14,295.—Amount of money, £59 11s. 3d.

Foreign Arrivals.—Since our last, the arrivals from South Australia has been unprecedented—the number of tons of copper ore received from Port Adelaide and Cuba, in a week, being 2772.—*Cambrian.*

Description of Ancient Mining in Ireland.—In consequence of an unexpected influx of matter, just as we were going to press, Mr. D'Alton's interesting communication is unavoidably postponed until next week.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	8 ..	3
1024	Alfred Consols	8¾ ..	7½
1000	Antimony&Silver-Lead	5 ..	5½
1024	AshburtonUnited Mines	8½ ..	12
1624	Balleswidden	9 ..	18
128	Balnoon Consols	42½ ..	50
10000	Banwen Iron Co.	6 ..	6
1000	Barristown	5½ ..	1½ 2
4000	Bedford	2½ 3	3½ 3¾
1244	Birch Tor Tin Mine	9 ..	5 5½
8000	Blaenavon	50 ..	12½
300	Blisland Consols	1 ..	6
100	Botallack	182 ..	25
120	Brewer	5 ..	3
10000	British Iron, New, regis.	12 ..	8
—	Ditto ditto, scrip	10 ..	10
128	Budnick Consols	52½ ..	12½
1000	Callington	20 ..	10 12
1000	Camborne Consols	5 ..	3
20000	Cameron's Steam Coal	6 ..	1
256	Caradon Copper Mine	9½ ..	1½
256	Caradon Mines	22½ ..	10
256	Caradon United	24 ..	5 8
256	Caradon Wh. Hooper	21 ..	4¾
1000	Carn Brea	15 ..	104
3000	Carthew Consols	1½ ..	5
114	Charlestown	220 ..	—
500	Comblawn	5½ ..	4½
128	Comfort	45 ..	75
256	Condurrow	20 ..	90 95
2560	Cook's Kitchen	14 ..	2½ 3
1000	Coombe Valley Quarry	3½ ..	4½
1000	Copper Bottom	1½ ..	6½
212	Craddock Moor	23½ ..	5
128	Creeg Braws	120 ..	30
500	Cubert Mine	12½ ..	—
1000	Cwm Erfin	3 ..	2¾ 3¼
300	D.Prior & Buckfastleigh	— ..	—
7100	Derwent	8½ ..	5
845	Devon&CourtenayCon.	7½ ..	¾
1024	Devon Great Consols	1 ..	205 10
1000	Dhurode	2 ..	5
186	Dolcoath	30 ..	15
2560	Drake Walls	5½ ..	3 4
10000	Durham County Coal	45 ..	9
3000	Dyfngwm	10 ..	12½
512	East Alvenney	5½ ..	6 6½
2500	East Birch Tor	3 ..	2½
112	East Caradon	47 ..	47
2048	East Crowndale	6½ ..	4
512	East Combe Silver-Lead	6½ ..	6½
128	East Pool	15 ..	75 80
9000	East Tamar Consols	½ ..	½ ¾
94	East Wheal Crofty	125 ..	65 70
1024	East Wheal Fortune	2 ..	3
128	East Wheal Rose	50 ..	550
—	EastofScotland Iron Co.	5 ..	1½
123	East Wheal Seton	14 ..	10
1280	Esgair Lli	1½ ..	2½ 3
248	Exmoor Wh. Eliza	6 ..	6
494	Fowey Consols	40 ..	45
1024	Freidd Llwydd Mines	1½ ..	3½
6400	Gadair	2 ..	2
4000	Gen.Mining Co.for Irel.	1½ ..	1½
256	Gonamena	44½ ..	16
128	Goonvrea	4 ..	2
256	Grambler & St. Aubyn	80 ..	12 15
100	Great Consols	1000	190 200
512	Gt.Wh.Rough Tor Con.	18½ ..	20 22
2000	Growa Slate Company	5 ..	5
256	Gwinear Consols	7 ..	1
6000	Heignston Down Con.	1½ ..	1½ 1¾
256	Herodsfoot	27 ..	15 17
10000	Hibernian	12½ ..	1¾
239	Hobb's Hill	6 ..	1½
1000	Holmbush	22	5
1536	Holne Park	2 ..	5
1024	Kingsett and Bedford	½ ..	3½ 4
827	Kirkcudbrightshire	8½ ..	3 4
2048	Lamberoe Wh. Maria	13 ..	2
252	Lanarth Consols	— ..	4
128	Lelant Consols	90 ..	40
160	Levant	—	180 200
1000	Lewis	16 ..	10½
1000	Llwyn Malees	7½ ..	7 8
3600	Llynvi Iron	50 ..	50
256	Lostwithiel Consols	19 ..	14
6000	Marke Valley	10 ..	¾ 1
5000	Mendip Hills	3 ..	¾ 1½
128	Metha	34 ..	—
20000	Mining Co. of Ireland	7 ..	4
1280	Nantyeria	4 ..	4
256	New East Crowndale	3½ ..	2½
100	North Pool	45 ..	621
140	North Roskear	5½ ..	150
262	North Wh. Leisure	1½ ..	2
256	North Wheal Basset	10 ..	10 12
15000	Northern Coal Co.	23 ..	2
128	Par Consols	55¾ ..	800
8000	Pennant & Craigwen	2 ..	2½
1024	Penzance Consols	18s 3d.	3
512	Plymouth Wh. Yeoland	6½ ..	6
200	Polsaith Consols	5½ ..	4¾
2500	Rhoswiddol&Bacheidon	10 ..	10
10000	Rhymney Iron	50 ..	13
10000	Ditto New	7 ..	6¾
1000	Rosewall Hill	1 ..	5
256	Rosewarva Mines	— ..	12
2048	Runnaford Coombe Tin	¾ ..	12
9000	South Tamar	½ ..	¾ 1

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
128	South Caradon	5 ..	400
1100	South Dolcoath	4 ..	5
256	Sth. Friendsh. Wh.Ann	20 ..	4
256	South Molton	5 ..	15
256	South Tolgus	14 ..	55 60
256	South Trelawny	28½ ..	2 3
2000	South Wales Mining Co.	¾ ..	1 1½
128	South Wheal Basset	20½ ..	300 10
124	South Wh. Frances	160 ..	260
256	South Wh. Josiah	— ..	3
1000	South Wh. Maria	2½ ..	1½
10000	Southern&Western,Irish	2 ..	4
280	Spearne Moor	30 ..	40
256	St. Austell Consols	9 ..	—
94	St. Ives Consols	— ..	70 90
128	St. Michael Penkivel	5 ..	10½
999	St. Minver Consols	1 ..	6
1000	Stray Park	43 ..	20
9600	Tamar Consols	3 ..	7½ 8
1024	Tavy Consols	6 ..	1½ 2
6000	Tincroft	7 ..	11
1000	Tin Vale	2½ ..	2½
58	Tokenbury	170 ..	10
256	Tregordan	2 ..	4 6
256	Trehane	1½ ..	25 26
5000	Treleigh Consols	6 ..	2 2½
2000	Trenance	3 ..	—
96	Tresavean	10 ..	150
120	Trethellan	5 ..	15 16
120	Treviskey and Barrier	130 ..	88 93
288	Treveau	1½ ..	5
100	United Mines	300 ..	200
256	Wellington Mines	25 ..	35 40
128	West Buller	10 ..	330 50
256	West Caradon	20	110 115
512	West Fowey Consols	40 ..	12
256	West Providence	9 ..	15
200	West Seton	40	225 230
—	West of Scotland Iron Co.	240 ..	90
120	West Trethellan	5 ..	16
256	West United Hills	— ..	4½
512	West Wheal Frances	1½ ..	2
256	West Wh. Friendship	9 ..	8
3725	West Wheal Jewel	11 ..	¾ 1½
256	West Wheal Tolgus	80 ..	14 15
256	West Wheal Treasury	19	4¾ 5½ 8
1024	Whiddon Mines	4¾ ..	2
5200	Wicklow Copper	5 ..	8½
107	Wheal Adams	79 ..	30
1000	Wheal Agar	— ..	8
256	Wheal Albert	10 ..	1
240	Wheal Anderton	25½ ..	29½
128	Wheal Ann	— ..	50¾
512	Wheal Anna Maria	6½ ..	8
1024	Wheal Ash	4½ ..	8
120	Wheal Bal	5½ ..	15
256	Wheal Benny	14½ ..	2
256	Wheal Blencowe	21 ..	10
256	Wheal Bucketts	20 ..	8
232½	Wheal Calstock	9 ..	15
1024	Wheal Coad	1 ..	4
268	Wheal Courtenay	12½ ..	—
256	Wheal Fortescue	6½ ..	—
388	Wheal Franco	27 ..	18 20
128	Wheal Harriet	45 ..	—
100	Wheal Henry	— ..	20 5
112	Wheal Margaret	79 ..	200
512	Wheal Mary Ann	5 ..	16 17
208	Wheal Mary Consols	60½ ..	8
—	Wheal Peniale	— ..	12
210	Wheal Prospect	4 ..	7
120	Wheal Reeth	41 ..	150
128	Wheal Rose	60 ..	3
198	Wheal Seton	214 ..	275
180	Wheal Sisters	35½ ..	5
494	Wheal Sophia	4½ ..	5
128	Wheal Spearne	10 ..	75
128	Wheal St. Ann	30 ..	35
550	Wheal Trescoll	7 ..	10
260	Wheal Trelawny	7½ ..	80 85
256	Wh.Tremaine(St.Ervan)	9½ ..	2½
1024	Wheal Tremayne	9½ ..	4 5
92	Wheal Tryphena	140 ..	265
1000	Wheal Vincent	2 ..	7
256	Wheal Vlow (Perranz.)	¾ ..	¾
184	Wheal Vyvyan	— ..	60
250	Wheal Williams	28¾ ..	8
1024	William & Mary Worth	2 ..	2½

FOREIGN MINES.

Shares.	Company.	Paid.	Price.
5000	Alten Mining Company	14½ ..	2½
15000	Asturian Mining Co.	15 ..	3½ ¾
20000	Australian	3 ..	6¾ ½ ¾
10000	Anglo-Mexican Co.	100 ..	¼
12374	Ditto Subscription	25 ..	1½
6000	Barossa Range	1½ ..	1½
3000	Bolanos	150 ..	2 2½
2000	Ditto Scrip	15 ..	2½ 2¾
10000	Brazilian Imperial	23 ..	4
12000	Cobre Copper Co.	40 ..	24½
10000	Copiapo Mining Co.	14 ..	4 4½
20000	General Mining Ass'n.	20 ..	14
4000	Guadalcanal	5 ..	10 11
5000	Kinzigthal Mining Ass.	2 ..	2
5051	Mexican Company	59½ ..	—
2000	Mexican & SouthAmer.	8 ..	1 1½
5000	National Brazilian	30 ..	3½ ¾
104000	N. Brit. Australasian	1 ..	¾ ⅞
7000	Royal Santiago	10 ..	5½
11000	St. John del Rey	15 ..	13½ 14
43174	United Mexican ... Av.	28½ ..	3 ½ ¾

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Lgth. Rway.	Present actual cost.	Price per share	Div. 1848	Traffic 1849	Returns 1848*
Belfast and Ballymena	37¾	——	21	5 p.c.	£ 481	—
Birkenhead, Lancashire, & Chesh.	19	1,088,804	37	5 p.c.*	972	926
Bolton, Blackburn, & West Yorksh.	14	786,384	7½	—	414	—
Caledonian	141	4,865,135	27 ½	—	5074	3633
Chester and Holyhead	84	3,014,602	16½	4	1317	—
Dublin and Drogheda	35½	774,875	33	—	762	803
Dublin and Kingstown	7½	395,915	—	—	1634	1824
Dundee, Perth, & Aberdeen Junc.	47½	544,554	24	8	1065	855
East Anglian (Lynn to Ely)	67½	1,167,104	3½ 3	—	586	465
East Lancashire	50	2,628,519	16¾	5	2488	1007
Eastern Counties and Norfolk	309¾	12,027,069	8 ½ 8	4	15432	15022
Eastern Union	50½	1,712,703	13	—	1132	1016
Edinburgh and Glasgow	57½	2,644,378	42¾	6	3796	3422
Edinburgh and Northern	78	2,232,115	12½	4*	2257	1138
Glasgow, Paisley, and Ayr	102½	2,286,353	57	4	2608	1926
Glasgow, Paisley, & Greenock	23	848,328	13¾	4	985	947
Gt. Northern & East Lincolnshire	110	4,255,171	10½	5*	2455	—
Gt. Southern & Western, Ireland	131	2,844,897	34	4*	3948	2302
Great Western	305¾	11,608,815	91 89	7	19575	19393
Kendal and Windermere	10½	174,600	25¾	—	122	133
Lancaster and Carlisle	70	1,476,102	53¾	4	2207	1607
Lancashire and Yorkshire	206½	9,218,450	72	6	11635	9370
London and North Western	435	25,077,942	129½ 9	7	40573	41927
London and Blackwall	4	1,299,675	5½	1-12	689	859
London, Brighton, & South Coast	162½	6,382,281	38¾	2½	7468	6646
London and South-Western	216½	7,510,689	35½	6	9538	8267
Londonderry and Enniskillen	14½	171,026	16	—	—	160
Manchester, Sheffield, & Lincolnsh.	91½	6,048,679	38	5	—	2497
Midland Company	471	14,042,340	66½	6	21255	18907
Midland Great Western (Irish)	50	725,332	24½	4*	1276	1018
North British	99	3,163,450	13¾	5	3119	1883
Scottish Central	45½	1,364,228	24¾	—	1157	—
Shrewsbury and Chester	47	969,618	18½	5	1372	609
South Devon	55½	1,909,232	16½	—	1443	743
South-Eastern	165½	8,116,914	21¾	6¾	7130	7894
Taff Vale	38	879,110	—	6½	2147	1782
Ulster	36	684,684	45¾	—	—	968
West Cornwall	13	—	—	—	314	—
Whitehaven Junction	12	150,879	109	3	206	172
York, Newcastle, & Berwick	269	6,827,849	20½	8	12024	10607
York and North Midland	255¾	4,983,618	36 4½	8	6652	8000

* Interest.—Total for last week, £200,421, being an increase of £25,511 over last year.

Edinburgh and Northern Railway.—In the Parliamentary Committee, yesterday, Mr. Smith, the examiner, declared that, in the case of this railway (formation of slip quay and other works at Granton, extension of station at Edinburgh, regulation of Perth stations, and amendment of Acts), the promoters had not complied with the Standing Orders.

Neath Harbour.—Yesterday, the corporation of the Brethren of the Trinity House, under the provisions of the 7th and 8th of Victoria, appointed 25 licensed pilots for the navigation of vessels into the port of Neath, Glamorganshire; and on and after the 8th proximo, any master of a vessel, except such as may be now on a foreign voyage, will be obliged, on pain of penalty, to use their services on entering Neath Harbour. Some amusement arose from 11 of the number bearing names exactly alike—namely: William Williams—and the board was, consequently, puzzled how to describe them for the purposes of the Act. It was at length resolved to number them thus—William Williams No. 1, No. 2, and so on.

LATEST CURRENT PRICES OF METALS.

LONDON, MAY 4, 1849.

		per ton.
ENGLISH IRON. *a*		
Bar, bolt, & square, London	£6	10—6 15
Nail rods	7	10 0
Hoops	8	17 6— 9
Sheets (single)	9	15 0—10
Bars, at Cardiff & Newport	5	7 6
Refined metal, Wales*	4	0 0
Do. anthracite*	4	0 0
Pig, No. 1, Wales, cold-blast	3	10—4 5
Do. do. hot-blast	3	10 0
Do., No. 1, Clyde ... *net cash*	2	5 0
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	4	0 0
Do., do., for tin-plates, boiler plates, &c., ditto	4	10 0
Stirling's Patent Toughened Pigs in Glasgow	2	17 6—3 2 6
Toughened Pigs in Wales	3	10—4
Staffordshire bars, at the works	7	10
Pigs, in Staffordshire	3	0—3 10
Rails	5	12 6—5 15
Chairs	4	0
FOREIGN IRON. *b*		
Swedish	12	0 0
CCND		—
PSI		—
Gourieff		—
Archangel		—
FOREIGN STEEL. *c*		
Swedish keg	14	5 0
Ditto faggot	15	5 0
ENGLISH COPPER. *d*		
Sheets, sheathing, & bolts, *p. lb.*	0	0 10
Tough cake *per ton*	88	10 0
Tile	87	10 0
Old copper *e* *per lb.*		8¾*d*
FOREIGN COPPER. *f*		
South American, in bond	£73—75	
ENGLISH LEAD. *g*		
Pig *per ton*	16	5 0
Sheet	16	15—17
Red lead	17	10 0
White ditto	22	0 0
Patent shot	19	10 0
FOREIGN LEAD. *h*		
Spanish, in bond	15	5—15 10
American ditto		—
ENGLISH TIN. *i*		
Block *per cwt.*	4	4 0
Bar	4	5 0
Refined	4	11 0
FOREIGN TIN *k*		
Banca, in bond	4	10 0
Straits	4	8 0
Peruvian (6 mo 2½ p. ct. dis.)		—
TIN-PLATES. *l*		
IC Coke *per box*	1	8 0
IC Charcoal	1	14 0
IX ditto	1	18 6
SPELTER. *m*		
Plates, warehoused *per ton*	16	0 0
Ditto, to arrive	15	15 0
ZINC. *n*		
English sheet *per ton*	24	0 0
QUICKSILVER *o* *per lb.*	0	3 2½

REMARKS.—The metal trade generally continues exceedingly languid; and the business transacted during the week has again been on the same limited scale as mentioned in our last.—Welch bar-iron and rails are to be had on easier terms, and some of the makers are willing to take orders at 5*l.* 5*s.* per ton for bars at the port; whilst second-hand parcels are offering at lower rates. The market shows decided symptoms of weakness; and the appearance of the largest holder of stock as a seller, has added very considerably to the depression previously existing in this article.—In Staffordshire iron, although prices remain nominally the same as those fixed at the last quarterly meeting of the trade, many of the makers, having no orders to go on with, have made sales much below them; it is, therefore, probable some general reduction will shortly be declared.—Scotch pig-iron is again lower; and we have to report a few sales of mixed numbers at 45*s.* and 44*s.* 6*d.*—cash in 14 days. We quote the price to-day, 44*s.* 6*d.* to 45*s.*, according to brands.—The production of Scotch pig-iron, as compared with last year, has increased from 6000 to 7000 tons per month; and when we look at the almost total cessation of foreign demand, and the unsatisfactory position of our home trade, there can be no doubt that the stock is rapidly increasing.—A reduction of 5*l.* per ton has taken place in English tin.

MONTHLY REPORT.—IRON.—The continuance of the blockade of the German ports by the Danes, and the receipt of less promising accounts from the United States, has operated unfavourably on all descriptions of iron during the past month. Welsh bars have been in limited request, and a decline of 5*s.* to 10*s.* per ton has been acceded to by makers and holders. In rails there has been little business, and they also have participated in the depression. Staffordshire iron at the prices of last quarter-day is in very moderate demand. Scotch pig-iron has declined to 45*s.* to 46*s.* per ton cash, free on board at Glasgow, for ordinary brands assorted 3-5 No. 1 and 2-5 No. 3; favourite brands commanding 2*s.* to 3*s.* per ton more. The shipments from Glasgow, and the neighbouring ports, for the first three months of this year, as shown by the official returns, approach within 6834 tons of the quantity shipped in the same period last year, and in an estimate made of the stock of pig-iron lying in store, and at the iron works at date 31st March, the same is computed at under 110,000 tons, being an increaseof 10,000 tons on that at 31st Dec. last. Of foreign iron there is little here, few spring shipments having yet been received, the price is firm at quotations.

COPPER.—English copper is in fair demand. There is no foreign copper in the market, except a parcel of Norwegian.

TIN has been in less request, and the price of English was yesterday reduced 5*l.* per ton.

TIN-PLATES are in limited demand, and prices have receded a shade.

LEAD is in fair demand, and the price is firm.

SPELTER.—Early in the month, in consequence of the blockade of the German ports, a considerable rise in spelter was apprehended, and towards the middle of the month an advance of about 10*s.* per month was established, making the price 16*l.* 10*s.*; since which, however, owing to fair arrivals, and want of confidence in the continuance of the blockade, the price has receded to my present quotations. The stock in warehouse on the 1st inst., was 1034 tons, against 2400 at this period last year. At the moment there is about 400 tons afloat in the river, but of which only a small quantity is likely to find its way into stock.

BIRMINGHAM.—We are happy to learn that at the present moment the iron trade remains comparatively good, and if orders are, in consequence of the advanced price, not just now so numerous as they were previous to the last quarter-day, the large houses have sufficient on hand to keep them in employment for some months to come. Within the last fortnight additional furnaces have been put in blast in the neighbourhood of Stourbridge, and in the districts of South Staffordshire great activity prevails. The fact that the wages of all the workmen connected with the iron manufacture are fully supported, is a pretty satisfactory proof that the ironmasters do not consider present prospects so illusory as some would imagine them to be, or that the late advance was the consequence of forced movements in the trade. Every description of iron, and all materials upon the blast furnace hearths, we are told, are purchased at higher rates. The demand for coals is represented to be good, and ironstone remains at pretty nearly the price it has recently brought; but, notwithstanding the apparently cheering prospects presented in the winter, and the continued favourable state of the iron manufacture, the other trades of this populous district (although not worse than of late years) have not flourished in the manner and degree so satisfactorily anticipated. The lamp manufacture can scarcely be otherwise than dull at this peculiar season of the year; but, nevertheless, one or two first-rate firms are not deficient of orders. The gun trade, more especially now the Sardenian and Sicilian commissions have been executed, is unprecedently flat; while, as compared with the period immediately previous to Christmas, the brassfoundersa complain of a falling off in their several departments of business. As a matter of consequence from the dearth of trade on the part of the manufacturers may be inferred a corresponding diminution in activity on the part of the merchants and factors, by whom articles of manufacture are purchased and distributed throughout the home market and the whole world. Many branches of the trade are subject to fearful competition with the manufacturers of Germany. The articles are hand-vices, pliers of all kind, cutting nippers, spring callipers, and other articles, in what is called the heavy steel toy trade. Patterns have been received and examined, and small bulks of them have also come to hand, and have been found even superior to sample. They are so good in appearance that no one would hesitate to make choice of them in preference to the articles manufactured by our own makers. It is said that the German manufacturers undertake to supply, in any quantities which may be required, and the prices range from 20 to 40 per cent. below English prices, after payment of a duty of 10 per cent.; and, in many cases, the mechanics' wages at home for forging, are equal to the whole price asked for the foreign article. These circumstances cause considerable mistrust as to the policy of some of our commercial regulations.

GLASGOW, MAY 1.—With a daily-diminishing demand the value of pig-iron still declines, and the unfavourable American advices, per *Niagara*, have affected the disposition of the market to a perceptible extent. The New York private letters by this conveyance state, that "the arrival of the *Niagara* with Glasgow dates of 23d March, produced complete stagnation in our pig-iron market, and still lower prices have been made within the last three days—No. 1 Gartsherrie having been sold from ship at 52½ per ton for cash, which is from 3*l.* 1½ to 3*l.* 1½ per ton *less* than cost at 50*s.*, and freight 25*s.* sterling. The present stock of Scotch pig-iron is not less than 12,000 tons, which is a large stock, as you may judge from the following table of imports into *this port*—viz.:

	1842.	1843.	1844.	1845.	1846.	1847.	1848.
Tons	14,588	3372	17,120	18,561	9899	25,309	57,815

The average yearly imports for six years, ending 31st Dec., 1847, being only 14,800 tons against 57,815 tons in 1848. The heavy imports in the latter year have left large stocks in the hands of small dealers and consumers; this fact accounts for the almost total absence of consumers' demand this year. Without an important reaction in your (Glasgow) market, prices will inevitably rule here below the present cost of importation until stock shall have diminished. It is proper to add, that some parties are storing the iron rather than sell at such prices as they can obtain at present."

As might naturally be expected, the market here was quite prostrate to-day, closing with the price of pig-iron nominal at 45*s.* to 45*s.* 6*d.* mixed Nos., and 45*s.* 6*d.* to 46*s.* No. 1—cash, free on board. Manufactured iron is also inactive, but without any material depreciation in price, which may be called easy at 6*l.* 5*s.* to 7*l.* for merchant bars; 7*l.* 10*s.* for nail-rods, and 8*l.* 5*s.* to 8*l.* 10*s.* for hoops, with 4 per cent. discount.

— MAY 3.—Pig-iron is very dull of sale this week: there are many disposed to sell, but no buyers, except at reduced prices. Owing to the dull accounts from the United States this week, Gartsherrie brand has also fallen in value, and can now easily be had at 46*s.* for No. 1. The shipments and consumption are still much within the make of the stocks—consequently increasing here. At Runcorn also, the stock has been much increased this year. We quote the price at 45*s.* for mixed Nos.—cash.

THE SCOTCH PIG-IRON TRADE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—We, the committee of the Glasgow Metal Brokers' Association, have had our attention called to an article that appeared in your Journal on the 21st April, which professed to give the Statistics of the Scotch Pig-Iron Trade for the first quarter of 1848 and 1849 respectively. The article referred to has induced us to institute minute inquiries as to the facts therein set forth, and the result enables us to state that they are erroneous, and calculated to mislead those engaged in the trade.

The statement in question declares that the make of the first three months of 1849 exceeds that of 1848 by ..... *Tons* 22,000

That the shipments of the first three months of 1849, as compared with those of 1848, show a decrease of 25,067

And that, *therefore*, the stock at the end of the first quarter of 1849, exceeds that of 31st Dec., 1848, by 47,067

With respect to the *production*, we take the furnaces in blast during the period referred to in 1849, as 102, which, at the rate of 1500 tons each per quarter, would give (provided they were uninterruptedly working) ..... *Tons* 153,000

The make of Scotland, during the year 1848, was 580,000 tons, or 145,000 tons per quarter: 100 furnaces were in blast on 1st January, 1848, but some were afterwards blown out; we, therefore, take the make of the first three months of 1848 at ..... *Tons* 135,000

Showing an excess of production in 1849 over 1848 of 18,000 tons—not 22,000, as stated by your correspondents.—The actual shipments from Jan. 1 to March 31, as ascertained from the Tonnage Offices, Custom Houses, and other authentic sources, were—

	Jan. 1 to March 31, 1848.	Jan. 1 to March 31, 1849.
Glasgow	*Tons* 79,863	53,816
Ayr	—	4,715
Ardrossan	7,182	12,142
Troon	—	7,085
Irvine	—	975
Charleston	3,950	3,802
Bo'ness	4,771	4,519
Burntisland	—	1,878
1848	*Tons* 95,766	*Tons* 88,932
1849	88,932	
	6,834 tons.	

Thus showing a decrease of shipments in 1849, as compared with 1848, of 6834 tons—not 25,067 tons, as stated by your correspondents.

The local consumption of Scotland is apparently not taken by your correspondents into account at all, which, however, is most important, in order to arrive at a correct estimate of stock. The first quarter of 1848 was a period of great depression, during which time the foundries and malleable works were almost at a stand for want of orders; whereas, during the same period of 1849, the malleable works were in full operation, and, as some of these establishments have of late increased their power, the consumption of pig-iron, in this branch of trade, has been largely increased, amounting now to about 3000 tons per week. Our foundries have also been well supplied with orders, and have been consuming at the rate of from 1700 to 2000 tons per week. We therefore consider the following as a just statement:—

Stock 1st January, 1849 (estimated)	*Tons* 100,000
Make 1st quarter of 1849, as stated above	153,000
Total supply	*Tons* 253,000
Shipments 1st Jan. to 31st March, as per statement	*Tons* 88,900
Consumed by malleable works, 2700 tons per week	35,100
Consumed by local foundries—say, 1600 tons per week	20,800—144,800
Leaving stock in hands of makers and storekeepers, March 31, 1849	108,200 tons.

Or an increase of 8200 tons, not 47,068 tons, as stated by your correspondents.

In order to test the correctness of our calculations, we have ascertained from the makers and storekeepers in Scotland the comparative stock on hand on the 31st March, 1849, and on the 31st December, 1848, and the result shows that the *increase of stock in Scotland* on the 31st of March last was actually (as stated above) 8200 tons, and *not* 47,068 tons, as erroneously stated by your correspondents.

WM. CONNAL, jun., chairman. J. D. SHEPPARD.
MATTHEW PEARCE. WM. SHORT.
Glasgow, May, 2. JAMES WATSON. FRANCIS TRUEMAN.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—On the 12th April we communicated to our friends, and a few leading houses in the trade, a report of our iron market, appended to which was some memoranda of the stock, &c., of pig-iron, as on the 31st March last; this report appeared in a local paper of 14th April, and the memorandum of stock, &c., was copied into the *Mining Journal* of the 21st April. A document has this day been issued here, under the authority and bearing the signature of the committee of the Glasgow Metal Brokers' Association, purporting to give authentic and correct details of the production, shipments, stocks, &c., up to the same period. The results of this statement are so much at variance with our report of 12th April, that, in justice to ourselves and the interests of the trade, we are compelled, very unwillingly we must say, to enter into particulars which, in other circumstances, would not be brought before the public. In the present instance, it is absolutely necessary that we do so, because it is not the isolated opinion of one individual we have to contend against, but the deliberate, and, we might add, deliberated statement of an association. Before, however, proceeding to the immediate object of this paper, we have to remark, for the information of those not conversant with the nature of the metal business here, that a considerable number of brokers and agents engaged in it declined to have any connection with this association, which does not, therefore, represent the general feeling, nor is it the authorised organ of the trade in any respect.

We come now to the statements in question, and, to prevent any misconception, we annex a copy of our report in question, also that of the association named. We shall take the statements of the latter in the order they stand, and those who take the trouble to read both sides will judge for themselves, as to which is nearest being correct.

INCREASE OF PRODUCTION.—By a mode of calculation suited to produce a convenient result, the statement takes the computed make of 1848 at 580,000 tons, and takes a fourth part thereof, with a small deduction, as the production of the special months of January, February, and March of that year; then it takes the furnaces in operation for same period of 1849 as 102, and calculates the production accordingly. But how stands the fact? Immediately on resuming work after the last new year, additional furnaces were put in, whereas, at the same period of 1848, a great many were put out of blast, thus telling, in both ways, on the production of the first three months of the present year; and to show the correctness of this fact, we request a glance at the following state of the furnaces at the various works for the period in question:

FURNACES IN OPERATION.

Works.	January. 1848.	January. 1849.	February. 1848.	February. 1849.	March. 1848.	March. 1849.
Gartsherrie	16	16	16	16	16	15
Dundyvan	7	9	7	9	7	9
Clyde	5	5	5	5	5	5
Calder	4	5	4	5	4	5
Govan	4	4	4	4	3	4
Monkland	9	9	9	9	9	9
Carnbroe	3	4	3	4	3	4
Summerlee	5	5	5	5	5	5
Coltness	4	5	4	5	4	5
Langloan	5	6	5	6	5	6
Carron	3	3	2	3	2	2
Muirkirk	0	2	0	2	0	2
Shotts	2	3	2	3	2	4
Glengarnock	6	8	6	8	6	8
Omoa	4	3	4	3	4	3
Castlehill	0	0	0	0	0	0
Lugar	0	4	0	4	0	4
Eglinton	0	2	0	2	0	2
Dalmellington	0	1	0	1	0	1
Kinneal	4	4	4	4	4	4
Forth	4	4	4	4	4	4
Lochgelly	0	2	0	2	0	2
	85	104	84	104	83	105
Giving additional furnaces in 1849	19		20		22	
	104	104	104	104	105	105

The excess of furnaces is thus shown to be 19 for January, 20 for February, and 22 for March, 1849; for the sake of calculation, we shall take the difference at 20 furnaces, for 13 weeks (1st Jan. to 31st March), which, at 130 tons per week for each furnace, would produce 33,800 tons in excess of same period of 1848. With these figures before him, will any one say that we over-stated, in our previous memorandum, this excess at 22,000 tons. If this weekly make per furnace be called too large, or the number of furnaces stated to be in operation in 1849 too many, we shall be too happy to admit the error, on its being corrected by the only parties who are entitled, from their own knowledge, to dispute its accuracy; even in such a case the difference would still be in our favour, but as we have given the detail of the data which furnished our former results, we leave this point to the judgment of those who take an interest in it. Meantime, we think the correctness of the principle of the calculation and moderation of our former figures is in no way invalidated by the peculiar process of average, and reasoning adopted in the statement of the association.

SHIPMENTS.—We feel indebted to the association for having provided the materials which enables us to rectify an error we fell into under this head; it arose from finding that the actual shipments from Glasgow in 1849 were so much in decrease of 1848, that not having specific returns from the outports, we set the deliveries there down the same in both years; or, speaking more correctly, we took no account of them in either year. The excess of shipments at the places in question this year is 19,287 tons; from this we deduct 5000, included in our former shipments; but which is lying at the eastern end of the canal, and forms an excess of the average quantity which is generally kept there to facilitate shipments. Deducting these 5000 tons from 19,827 tons, there is only a difference of 14,827 tons, which, taken from the stock given in our last report, will still leave a stock of 132,250 tons—a quantity more than sufficient for present wants; but if to this be added the difference in the production, between 22,000 tons, and that herein shown—say, 11,000 tons—the stock will appear as 143,000 tons; certainly not anything very far different from what we stated—viz.: 147,000 tons. In conjunction with stocks, we would take the liberty of soliciting the attention of any competent party curious on the subject, to satisfy himself, by ocular view of the quantities in the various depôts in this district, and compare these with what they were 31st Dec. last, he will have little difficulty in arriving at the conclusion, whether the increase is 8000 tons or more. Did his time permit, he might extend the inspection to Runcorn and other places in England; his report on the result could not fail of being interesting and of value to all concerned.

There is just one other point in the statement of the association which interests us, as bearing on our report of the 12th April—viz.: CONSUMPTION: This is an item that can be magnified, or diminished (on paper), at will, without presenting safe data to arrive at a correct conclusion on the subject; by increasing it, the stock can be reduced to any amount required, and *vice versâ*. We believe we are not far wrong, in stating that the general consumption of pig-iron in foundries, during the first quarter of 1849, was very limited indeed, exceeding very little, if any, that of the relative period of 1848. The malleable iron-works are certainly much better in orders now than they were then, and some of them are consuming considerably more pig-iron also; but the fact must not be overlooked, that one large work, which was then consuming extensively, is now all but idle; nor has it received but a very inconsiderable quantity of pig-iron into its premises this year. This circumstance, in our opinion, equalises as nearly as may be the increased consumption at other works, and satisfactorily shows that there was no necessity for taking any notice of the consumption in our former *vidimus* of production, shipments, and stocks. Having thus performed the duty imposed upon us, and referred to at the commencement of this communication, permit us, in conclusion, to remark, that our sole object is to obtain and give correct information respecting this very important branch of the trade of Scotland. If the documents in question contribute to this end, not only is our object gained, but the interests of trade generally satisfactorily promoted.

Glasgow, May 3. P. and H. FERGUSON and RHIND.

BOMBAY, APRIL 2.—English bar-iron has been in good inquiry, as also Swedish, but without any improvement in value. Sheet-iron and nail-rod are not much sought after, and prices are rather lower than at date of last report. For copper the market continues steady. The stocks of all descriptions on hand are moderate. A parcel of South American has been received, *viâ* China, but its sale has not yet been effected. Spelter has advanced in value, and but a moderate stock is on hand. There is no pig or sheet lead in the market, and the demand for them is good.

EXPORTS OF METALS TO ALL INDIA FROM LONDON AND LIVERPOOL,

FOR THE FIRST FOUR MONTHS OF 1848 AND 1849.

Metals.		1848.	1849.	*In. in* 1849.	*Dec. in* 1848.
Spelter	*Tons*	627	1129	502	—
Copper		1305	1678	373	—
Iron, British		6180	8699	2519	—
Ditto, foreign		145	629	484	—
Tin-plates	*Boxes*	1311	2080	769	—
Lead	*Tons*	171	1095	924	—
Steel	*Cwts.*	51	260	209	—

VALUABLE MINE MATERIALS FOR SALE.

TO BE SOLD, BY PRIVATE CONTRACT, at NORTH DARLINGTON MINE, in the parish of LUDGVAN, in the county of Cornwall, ONE 60-inch CYLINDER ENGINE, 10-feet stroke in the cylinder, and 8 feet in the shaft, with brass-lined condensing work, and two boilers, about 12 tons each—also, ONE 20-in. STEAM WHIM, with a cage & boiler, complete—all in excellent condition.

5	Fathoms of 20-inch pumps		18, 16, 15, 13, and 12-in. plunger-poles
36	ditto	17 ditto	16, 13, 12, and 11-inch windbore
50	ditto	16 ditto	14, 13, 12, 10, and 9-inch clackseat-pieces
18	ditto	15 ditto	13, 12, and 9-inch working barrels
12	ditto	14 ditto	8 Pieces of 12-inch mainrod
57	ditto	13 ditto	8 Pairs faggotted strapping plates, 19 ft. long, 8 in. wide, and 1¼-in. thick
22	ditto	11 ditto	4 Pairs ditto, 14 feet long, 6 inches wide, and 1¼ inch thick
15	ditto	10 ditto	50 Pairs of common iron ditto, various sizes
6	ditto	8 ditto	
18, 16, and 14-inch H & topdoor-pieces			
18, 16, 15, 13, and 12-inch stuffing-boxes and glands			

Flange bolts, about 40 cwts. of different lengths and sizes; rod pins, about 40 cwts. of ditto, ditto; staples and glands, of various sizes; 18, 15, 12, and 9-inch box prongs and brasses; 90 fathoms of 13¼-inch capstan rope, nearly new; several pair of large caps and cheeks, seatings and valves, anvils, vices, smiths' and miners' tools, and a great quantity of other useful mining materials.

For viewing the same, apply to the agent on the mine, on Tuesday and Thursday in every week, from 10 A.M., until 4 P.M., until the same are disposed of.

Dated North Darlington Mine, 1st May, 1849.

THE COAL MINES AT VANCOUVER'S ISLAND.—We understand it to be the intention of the Hudson's Bay Company to dispatch a vessel with stores and emigrants to Vancouver's Island some time about the month of June, before which period the company expect to be in possession of further particulars regarding the colony, and probably also of partial surveys. The contract, recently completed with the American Pacific Mail Steam-packet Company, furnishes a strong indication of the profits which may ultimately accrue from the coal mines. The quantity purchased was 1000 tons for one year's consumption, "to be delivered at a safe and secure anchorage near the mines," but to be shipped by the American company at their own expense—300 tons by the 1st of May, 1849, and the remainder before the 1st of May, 1850. The coal being on the surface, and the trouble and risk of shipment being avoided, the contract could scarcely fail to yield a profit even at a low price, but the rate fixed is not less than 50*s.* per ton. Two years back the steam-sloop, *Cormorant*, obtained 62 tons in two days, at a cost of only 4*s.* per ton; the Indians, who are numerous and active, being by no means averse to the labour. It will be remembered that in the terms issued by the Hudson's Bay Company, the privilege of working these mines is accorded to any settlers by whom the land may be purchased on payment of a royalty of 2*s.* 6*d.* per ton. The price charged in the present instance to the American steamers may be attributed simply to their not being able to supply themselves at a less price at any intermediate point, coupled with the circumstance of the arrangement being made by the Hudson's Bay Company out of their regular course for the convenience of these parties, instead of, as would be the case with regular settlers, as a matter of ordinary business.—*Times.*

JURISDICTION OF THE STANNARIES' COURT.—In the Bail Court, yesterday, Mr. M. Smith moved for a rule to show cause why a prohibition should not issue restraining the Judge of the County Court of Cornwall from proceeding in a case wherein a "tinner" of Cornwall was the defendant. Before the passing of the County Court Act, certain persons living within the jurisdiction of the Stannaries' Court, among others "tinners," had an exemption from answering any civil proceeding in any court except the Stannaries' Court of Cornwall. The County Court Act, in the 67th section, enacted that no privilege, except as thereinafter mentioned, should exempt any person from the jurisdiction of any court held under that Act. By the 141st section, it provided that nothing in that Act contained should be construed to affect the courts of the Lord Warden, or of the Vice-Warden of the Stannaries of Cornwall; but this provision should not be deemed to prevent the establishment of any court under this Act within the said Stannaries, or to limit or affect the jurisdiction of any court so established under that Act. It was the wish of all the official parties to obtain the opinion of this Court as to the extent to which this clause in the County Court Act could be carried as regards the Court of the Stannaries.—Rule granted.

LEAD ORES.

Sold at the Mine.

Mines.	*Tons.*	*Price.*	*Amount.*	*Purchasers.*
East Wheal Rose	94	£12 5 6	£1153 17 0	J. T. Treffry.
ditto	73	12 9 6	910 13 6	Sims & Co.
ditto	65	11 13 6	758 17 6	J. T. Treffry.
Sold at London.				
East Tamar	68	£13 13 6	£ 929 18 0	Sims & Co.
Callington	72	17 12 0	1267 4 0	Tamar Company.
Sold at Aberystwith.				
Bwlch Consols	65	£12 7 0	£ 802 15 0	Mather & Co.
Sold at Liskeard, April 30.				
Tregordan	5½	£35 0 0	£ 183 15 0	R. Michell & Son.

BLACK TIN

Mine.	*Tons.*	*Price.*	*Purchasers.*
Polgooth	15	£45 10 0	Danbuz.
ditto	15	45 10 0	Calenick Smelting Co.
ditto	15	45 10 0	Williams and Co.
ditto	15	45 10 0	Daubuz; Calenick; Williams
ditto	2½	42 0 0	Bissoe Company.
Charlestown	8½	45 0 0	ditto
ditto	½	43 12 6	ditto
ditto	1	35 17 6	ditto
Drake Walls	4½	47 2 6	Williams and Co.
ditto	6½	40 0 0	Daubuz and Calenick Co.

COPPER ORES.

Sampled April 18, and Sold at Tyack's Hotel, Camborne, May 3, 1849.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
North Roskear	130	£5 3 5	Tincroft	41	£2 14 6
ditto	111	5 3 6	ditto	32	2 10 0
ditto	107	4 14 0	ditto	26	2 4 0
ditto	100	7 3 0	Fowey Consols	91	6 12 6
ditto	87	4 6 0	ditto	75	7 15 6
ditto	79	7 13 0	ditto	73	5 17 0
ditto	77	7 10 0	ditto	58	4 17 6
ditto	70	1 12 6	Wh. Seton	113	5 0 6
ditto	63	4 18 6	ditto	101	5 4 6
ditto	51	2 8 6	ditto	48	2 7 6
ditto	50	1 18 0	South Wh. Basset	71	9 3 6
ditto	37	6 1 0	ditto	56	10 18 6
North Pool	120	3 12 6	ditto	51	3 13 6
ditto	114	6 16 0	ditto	38	5 1 6
ditto	112	6 12 0	South Wh. Frances	79	5 18 6
ditto	106	6 2 0	ditto	42	7 18 0
ditto	95	3 5 0	ditto	29	9 18 6
ditto	73	3 11 0	ditto	19	8 13 6
ditto	55	1 12 6	Creeg Braws	70	4 5 0
ditto	16	2 2 0	ditto	48	4 1 0
Consolidated	113	5 11 6	ditto	32	9 11 0
ditto	106	6 3 0	South Roskear	70	5 17 6
ditto	104	6 7 0	Wh. Chance	63	4 1 0
ditto	74	4 18 0	Wh. Vyvyan	36	4 19 6
ditto	65	5 3 0	Wh. Union	8	9 7 6
ditto	50	6 12 6	Wheal Northy	2	7 16 0
Tincroft	63	2 16 0	Wh. Henry	65	
ditto	55	6 8 6	ditto	57	Withdrawn.
ditto	50	3 1 6	ditto	53	
ditto	44	3 19 0	ditto	43	
ditto	42	5 4 6	ditto	22	

TOTAL PRODUCE.

South Roskear	962	£4887 11 6	Creeg Braws	150	£797 10 0
North Pool	691	3286 17 6	South Roskear	133	666 8 0
Consolidated	512	2970 17 6	Wh. Chance		
Tincroft	353	1325 14 0	Wh. Vyvyan	36	179 2 0
Fowey Consols	297	1895 16 0	Wh. Union	8	75 0 0
Wh. Seton	263	1209 11 0	Wh. Northy	2	15 12 0
South Wh. Basset	216	1643 10 0	Wh. Henry	240	Withdrawn
South Wh. Frances	169	1252 10 6			

Average Standard ..... £105 8 0 | Average Produce 7¼
Average Price per ton £5 6 6
Quantity of Ore ..... 3791 tons. | Quantity of Fine Copper, 290 tons 11 cwts.
Amount of Money £20,206 0 0

LAST SALE.—Average Standard ..... £112 3 0.—Average Produce 6¾
Standard of corresponding sale last month, 106*l.* 13*s.*—Produce, 7¼.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	183	£ 745 5 6
Vivian and Sons	894	4160 15 9
Freeman and Co.	502	2731 17 9
P. Grenfell and Sons	665	4072 1 9
Sims, Willyams, and Co.	523	2840 18 0
Williams, Foster, and Co	917	4923 15 3
Schneider and Co.	107	722 6 0
Total tons	3791	£20,206 0 0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carn Brea 786—Tywarnhayle 360—Par Consols 334—Levant 255—West Wheal Treasury 164—Wheal Tremayne 123—West Wheal Buller 115—Wheal Agar 102—South Crinnis 101—Great Work 95—Wheal Busy 54—Wheal Friendship 38—Alfred Consols 38—Wheal Venture 15—Carzise 4.—Total, 2584 tons.

Copper ores for sale on Thursday week, at the Royal Hotel, Truro.—Mines and Parcels.—Devon Great Consols, Wheal Josiah, Wheal Maria, Wheal Fanny, and Wheal Anna Maria 1319—West Caradon 346—Fowey Consols 232—Wheal Friendship 228—Bedford United Mines 115—Poldice 111—Wheal Maiden 24—Wheal Jewel 18.—Total, 2393 tons.

For sale at SWANSEA, May 10.—Cobre 96, ditto 91, ditto 86, ditto 74, ditto 64, ditto 59, ditto 56, ditto 110, ditto 105, ditto 92, ditto 53, ditto 46.—Berchaven 127, ditto 123, ditto 97, ditto 89.—Knockmahon 79, ditto 77.—Chili 48.—Ballymurtagh 29.—Burra Burra 241 ditto 1.—Total, 1626 tons.

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

THE GUN-COTTON ENGINE.—We have received a letter from the Baron Von Rathen, on the cost per mile, at which Count de Werdinsky has professed to be able to work a locomotive on his proposed plan, which would have been inserted, had we not received from the Count a correction, which will be found in another column, stating that the cost, instead of "less than three-halfpence per mile," would be "less than three-farthings per mile." As this circumstance alters the whole calculations and bearing of Baron Von Rathen's communication, it has been omitted.

"An Adventurer" (Mold) should apply to a mine agent for the particulars he requires. We know nothing of the "state and prospects" of the undertaking beyond what appears in the published reports, and invariably decline giving "opinions" or "advice."

"J. R." (Neath).—Our notice to a correspondent on the coal-fields, was principally obtained from Mr. Taylor's work; on consulting other authorities, we find but little discrepancy exists between them, and he appears to have availed himself of the fullest and most recent information.

"G. E. D." (Writhlington, near Bath).—We have no doubt the combustion of the heaps of blue shale, mixed with coal dust, which lie around the coal pits, occurs quite spontaneously, and the following phenomena furnish the cause:—The shale and the coal contain iron and sulphur, which, when broken up, mixed, and piled in heaps, exposed to wet and the action of the atmosphere, a chemical action is engendered, which gives out sufficient calorie to ignite the coal and the carbonaceous particles of the shale, which in many instances it contains. During the slow combustion which ensues, the red oxide of iron is formed: hence the change of colour from blue to red, and its fitness, from its bright colour and binding qualities, for gravel walks. Such spontaneous fires have, without doubt, taken place in the mine, but are naturally of not frequent occurrence, as the shale, *in situ*, being a hard and compact body, is not in general acted upon to sufficient extent by atmospheric air and moisture.

"J. M." (Hull).—Messrs. John Bazeley White and Son, of 17, Millbank-street, Westminster, are the patentees of Keene's marble cement—a brief notice of its properties will be found in another column.

"A. Z." (Harwich).—There is such an instrument as the water telescope, by which, in clear seas, objects can be seen at the depth of from 10 to 15 fathoms. It is much used by the fishermen of Norway, and is of such simple construction, that they make them themselves. They thrust one end into the water, and by covering the other by pressing it close to the eye and cheek, to exclude the rays of light, it can be easily discerned where the fish lay in the largest shoals, and they signal accordingly to their companions, who secure them by large drag nets. One has lately been introduced on the Tay, in Scotland.

"A. B." (Washford, Taunton).—The import duty on foreign manufactured lead is 2s. 6d. per ton; there is no duty on the raw material.

"B." (Strand).—We have enquired of several ironmasters, who inform us, there is no peculiar species of iron or steel manufactured for the French market; the price of iron is in general regulated by the market price here, but varies according to the demand and supply. The duty on iron and steel imported into France we shall be able to give in our next week's Journal.

P. Famin (Tower-street).—To detect the admixture of lead in wine, equal parts of oyster shells and crude sulphur may be kept in a white heat for 15 minutes, and when cold, mixed with an equal quantity of acidulous tartrate of potash, and put into a strong bottle, with common water, to boil for an hour, and then decanted into bottles holding an ounce each, with 20 drops of muriatic acid in each. This liquor precipitates the least quantity of lead and copper from wines, in a very sensible black precipitate. As iron might accidentally be contained in the wine, the muriatic acid is added to prevent its precipitation, and its being mistaken for the precipitate of lead.

J. Jones (Llandilo).—After iron and gold, manganese is the metal most generally, though minutely, diffused through the earth.

"F. L." (Birmingham).—The Company of Copper Miners' in England was first incorporated by Royal Charter 1691.

"A Student" (Durham).—Ammoniacal oxide of silver, or fulminating silver, is obtained by the following process:—Nitrate of silver, being precipitated from its solution by lime, and placed on filtering paper, to separate it from the moisture, is then to have a small portion of liquid ammonia poured on it. The mixture having remained 10 or 12 hours, if a bright pellicle appears, more ammonia is to be added. The fluid is afterwards to be decanted from the black precipitate, and evaporated in a retort, when it will become full of opaque crystals of a metallic appearance, which fulminate on being touched, even under water. Both these crystals and the precipitate exceed in power gunpowder, and even fulminating gold. Fulminating silver, once thus obtained, can no longer be touched without a violent detonation, no more than one grain being sufficient to give rise to a dangerous fulmination. After this fulmination, the silver is found reduced, or revivified—its oxygen having combined with the hydrogen of the ammonia, by which water, in the state of vapour, is produced. This water, instantly vapourised, and possessing all the elasticity and expansive force of that state, is the principal cause of the phenomenon, in which the nitrogen of the ammonia, with its whole expansibility, bears a part.

"A Mechanic" (Whitechapel).—The hard solder used by braziers, is composed of three parts of brass and one of zinc. The brass is put into a crucible, with a little borax; when melted the zinc is added, and the mixture stirred well together, until the blue flame subsides. It is then poured into a shallow pan, or ingot mould, so as to form a plate. It is afterwards granulated by heating to nearly a red heat, and then beating it on an anvil, or pounding it in a mortar.

H. Jones (Daventry).—The oldest copper mine of which we have any authentic account is that of Langeus, in Thrace. It is said by Strabo to have been worked by Cadmus, The founder of Thebes, 1564 years A.C.

"Mercator" (Portsmouth).—The fodder of lead varies in different localities. In Derbyshire the fodder of lead consists of 23½ long cwts. of 120 lbs., or 2820 lbs. In shipping it in vessels on the Trent, it is put on board by the fodder of 2408 lbs.; the invoice is made after that. On arrival in the Thames, the fodder is weighed at 2184 lbs. For the Hull market it is reckoned at 2340 lbs. The customs' duties are invariably payable on the fodder of 2240 lbs.

"C. H." (Bristol).—Iodine is considered as a mineral substance, though it is non-metallic. It exists in sea-water, and in the water of several natural springs. It was discovered, in 1812, by M. Courtois, of Paris. It is found in shining scales, having the lustre of steel, or micaceous iron ore, the specific gravity of which is 4·948. At 225° Fahr. it fuses, and at 347° forms a rich violet-coloured vapour It forms acids with oxygen, hydrogen, and chlorine; but it is a very rare production of Nature.

G. Lewis" (Llandilo).—The use of iron in England is of great antiquity. The ancient Britons, at the invasion of Julius Cæsar, were famed for the scythes with which their chariots were mounted, to oppose the enemy. Where their forges existed is not correctly known. There were several iron forges in the Forest of Dean in the year 1238. Among the patent rolls of Henry III. occurs one dated the 22d year of his reign, entitled, "De forgeis levandis in foresta Dean."

"A Shareholder" (Leeds) should apply to the secretary, who will readily forward the information, or state where it can be procured. The offices are in Old Broad-street.

"An Enquirer" (Bath).—The Biddery ware is so called from a city of that name in Hindoostan, about 60 miles north-west of Hyderabad; it resembles pewter or zinc, but the natives of the east prefer to give it a sable hue, in order to throw up the silver with which it is in general inlaid. Dr. Heyne says it is composed of—copper, 16 ozs.; lead, 4 ozs.; tin, 2 ozs. To every 3 ozs. of the alloy, 16 ozs. of speiter is added, when the metal is melted for use. To give the ware its esteemed black colour, it is dipped in a solution of sal ammoniac, saltpetre, common salt, and blue vitriol.

"Gas" (Bicester).—Naphtha consists, according to Thomson, of—Carbon, 82·2; hydrogen, 14·8. It is nearly colourless, sometimes yellow and transparent; it burns with a bright flame, much smoke, and leaves no residuum. Its principal localities are Persia and the Birman empire. At Rangoon there are upwards of 500 naphtha wells, which yield annually about 412,000 hogsheads. In Persia, and near the Caspian Sea, it is used instead of oil for lamps.

"An Engineer" (Greenwich).—One of the first suspension bridges was built over the River Tees, in 1741, to form a communication between the counties of Durham and York. Hutchinson thus describes it, in his *Antiquities of Durham*:—"There is a bridge suspended on iron chains, stretched from rock to rock, over a chasm near 60 ft. deep, for the passage of travellers, principally miners. The bridge is 70 ft. in length, and little more than 2 ft. broad, with a hand rail on one side, and planked in such a manner that the traveller experiences all the tremulous motion of the chain, and sees himself suspended over a roaring gulf, on an agitated and restless gangway, to which few strangers dare trust themselves."

"L. S. M." (Guildford).—The art of tinning is of great antiquity, and appears to have been performed at an early period in a very perfect manner. Pliny says that tinned articles could scarcely be distinguished from silver; and tinning, he adds, with an expression of wonder, did not increase the weight of the vessel. Dr. Watson caused a vessel, 254 square inches, weighing 26 ounces, to be tinned, and found the weight was only increased half an ounce, giving a surprising proof of the divisibility of metal.

B. Evans (Barnsbury Park).—The first brass works which were erected in this country are still existing at Baptist Mills, about a mile north-east of the city of Bristol; they were first established in Birmingham in 1740, by a family of the name of Turner, who erected works on the south end of Coleshill-street.

E. Parker (Sheffield).—We do not exactly know the proportions used in gun metal. The common ingredients are said to be, 100 lbs. of copper, 10 lbs. of tin; or, to 240 lbs. of old metal add 68 lbs. of copper, 25 lbs. of common brass, and 12 lbs. of tin. The Germans mix theirs thus—to 4200 lbs. of metal fit to cast again they add 363⅔ lbs. of copper, 204⅓ lbs. of brass, and 307⅔ lbs. of tin. The French are reported to use the following proportions—to 100 lbs. of copper, from 6 lbs. to 10 lbs. of common brass, and from 9 lbs. to 15 lbs. of tin.

"Nauticus" (Milford).—From 50,000*l.* to 60,0 0*l.* are stated to be annually expended in the navy for new copper to replace old sheathing.

J. Browne (Portland-place).—The expedient of throwing shot from a tower, to preserve its globular form, was first hit upon by a Bristol plumber, of the name of Watts, in the year 1782; the experiment was first tried from the tower of St. Mary, Redcliffe. Watts subsequently sold his patent to the eminent firm of Walker, Maltby, and Co., and with the money commenced making excavations and building walls to form a crescent at Clifton. The foundations were scarcely completed, when his fortune was expended, and the spot, for many years, bore the designation of "Watts' Folly."

"A Young Jeweller" (Bond-street).—The diamonds in Brazil, though of fine water, rarely exceed 30 carats. The diamond belonging to the Emperor of Russia weighs 193 carats; it is said to have once formed the eye of an Indian idol, and is from the vicinity of Golconda. The one in possession of the Rajah of Mattan, which was found in Borneo, weighs 367 carats; the one formerly in the possession of the Great Mogul is reported, in its rough state, to have weighed not less than 800 carats.

"An Ironfounder" (Birmingham).—The most simple description of furnaces are those used by the Hottentots; they are built of clay, of a conical form, which, on being heated, becomes as hard as stone. A round opening is left at the top for receiving the ore, and underneath a space for the fire; the pile is open before and behind, not only for admitting the fuel, but the operation of the rude bellows, which consist of a skin distended and compressed by the hands.

H. Meldon (Bath).—The goniometer, as invented by Carangeau, is a simple instrument, consisting of a graduated brass, or silver, semicircle, with two steel arms, one fixed and one moveable. The reflective goniometer of Dr. Wollaston is a very superior instrument, and invaluable to a student of crystallography.

The letter of Mr. C. J. Hansen, C.E., on the Gun-Cotton Engine; and that of Mr. John De le Haye, in reply to "J. H. S. C." on Iron Steam-Ships as Vessels of War, shall appear in next week's Journal.

"A Reader" (North Britain) shall be answered next week.

*** It is particularly requested that all communications may be addressed—

To THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

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THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, MAY 5, 1849.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

We have, in a great measure, prepared our readers, by several intimations in recent Numbers of the Journal, for that improvement in mining affairs generally which has now happily taken place. At the recent meetings of the iron trade in the midland districts, the price of that important article was, by universal consent, moderately advanced from its former quotations; and, as a corollary or accompaniment to that favourable change, the wages of the workmen are likely to continue at a full remunerative amount. It is gratifying to see such improvements proceeding hand in hand; for it is an unrefuted axiom, that the workmen are fairly entitled to the best wages which the state of trade, and the prevailing scale of profit, will enable the masters to give. And the lesson which we wish to teach reads both ways—the men are equally bound, in times of depression, and of a low scale of profits, to submit to that reduction which the circumstances of the trade actually call for. All the branches of this great interest, and all the classes connected with it, should cheerfully suffer and thankfully thrive together.

We are, we trust, far from being at the end of our improvements. We have, in fact, but just commenced them; the steady, yet gradual, headway we are making is one or the most gratifying features of our progress, nor do we think the casual depression under which a few branches are labouring from the introduction of German manufactures will be lasting, or that it will prove serious in its results. Free trade is not taking possession of all the seats of commerce by a *coup de main*, but ascertaining its strength, and feeling its way prudently. The vessel is at present, peradventure, a little interrupted by land breezes and insular currents; but as soon as she has reached the open sea, and her trim and capabilities are more fully known, her sails, we have reason to believe, will be filled with those gales which will enable her to enrich every shore, and to accomplish all the high purposes of her destination. Among these, judging from the facts which are daily disclosing themselves, the further improvement and prosperity of our home mining interests may be especially and confidently reckoned upon.

A singularly interesting account of some experimental means adopted for extinguishing a fire in a coal mine will be found in another column, in a communication from Mr. JOHN DARLINGTON, the proprietor of the Astley and Tyldesley Collieries, near Manchester. The successful result of these operations, which forms an entirely new feature in colliery practice, has been effected by Mr. GOLDSWORTHY GURNEY, who, in this instance, has given battle to those elements which have hitherto baffled the skill and experience of colliery practitioners, leaving them only one resource—that of drowning the mine when water is available, for in few instances has the mere sealing up the shafts extinguished the combustion after months, and even years, of anxious suspense and loss. Mr. GURNEY, in this instance, has fought PLUTO with his own weapons, and come off conqueror. By constructing a furnace, 4 feet square, in which coal was burnt, and conveying the gaseous products thereof (themselves non-supporters of combustion) through the mine, employing jets of high-pressure steam to accelerate the draught, in comparatively a few hours the fire was extinguished, the workings, though three miles in extent, rendered perfectly clear and wholesome, and the whole completed at a cost altogether trifling, when compared with the good effected. The experiment, and its successful result, is of the greatest importance to the coal mining interest, as, in future cases of fire underground, the mine need not be idle more than a day or two, which is ample to place it again in a pure and healthy state for the men to work in. It is also another decisive proof of the peculiar advantages of high-pressure steam as a means of ventilation; and we cannot close these few remarks without expressing our conviction that Mr. GURNEY has laid the coal mining interest under great obligations, and that he is highly entitled to the thanks of the public. It appears a singular coincidence, that the mines of Messrs. ACKERS and Co., near Leigh, should at this moment be suffering from a serious conflagration; and we should expect those gentlemen will lose no time in applying a remedy which, in Mr. DARLINGTON'S case, has been so eminently successful, and one so truly founded on sure scientific principles, and the unerring laws of Nature.

Having, in last week's MINING JOURNAL, called attention to the report of Mr. SEYMOUR TREMENHEERE on the Darley Main Colliery explosion, and the subject of Government inspection in mines, we again refer to it, as also one by Mr WARINGTON SMITH, published under the authority of Parliament. An important point in the consideration of establishing a general inspection of mines came under Mr. TREMENHEERE'S notice—viz.: the cost. In France, Belgium, and the Prussian provinces on this side the Rhine, the dues paid by the grantees of mineral property are 5 per cent. on the net profits. Of this, 2½ per cent. is payable to the owners of the soil; but, owing to the minute subdivision of property, the proportion that can be claimed by any individual is so small that it is seldom asked for. It is the duty of the inspectors to examine the books of the different mines to ascertain the amount of net profit, and to cause the 2½ per cent. due to Government to be duly paid. This sum may be considered to be received by the respective Governments, not as a tax, but as owners of the mineral property; and it is understood to be sufficient to meet the cost of the inspection, and also that of the Schools of Mines established in these countries. In the other parts of Germany, the dues hitherto taken by the different Governments have been very high, generally about 10 per cent. of the gross produce; but a proposition was laid before the late Assembly, at Berlin, founded on the consent of the chief owners of mines, and the approval of the officers of the Government, to assimilate the German to the French code of mining laws; and no one can be conversant with the great benefit which the admirable Schools of Mines in France, Belgium, and Germany confer on those countries without a regret that this country has so long neglected such obvious means of usefulness.

After mature consideration, and an examination of the data afforded by the factory inspection, Mr. TREMENHEERE is of opinion that an efficient system of colliery inspection might be established at about one-third the cost of the inspection of factories—that is, for about 3500*l.* or 4000*l.* a year; a sum which, divided over the vast colliery properties in this country, would absolutely not be felt. It is gratifying to learn that the coalmasters are getting alive to the importance of the subject. In the neighbourhood of Barnsley, Leeds, and Wakefield, a coalowner's association is formed, and already numbers 30 individuals—their object being to obtain a more intelligent class of men for underground agents and viewers, as substitutes for the present ones; the generality of whom are illiterate and ignorant, without a knowledge of even the first principles of science, and totally unfit to have in their keeping the lives of so many scores of their fellow-creatures.

The report of Mr. WARINGTON SMITH is founded more upon the practical state and working of the colliery before, at the time of, and after the explosion; and in contemplating from the various data the causes which contributed to the disaster, and the means which may tend to their prevention in future, he expresses his conviction that several details, both of the working and ventilation, might be altered for the better, and that an inspection by a properly qualified officer of the Government would probably have directed attention to such defects. It might be remarked at this colliery, as in too many of our coal workings, that the standard of "good ventilation" among persons concerned with it, is far too low; and that the most practicable mode of raising that standard would be the occasional visit and suggestions of a person possessed of great general experience, and an intimate acquaintance with the best examples of the art in various districts.

The following he lays down as important points for consideration in all coal workings:—1. The insufficient quantity of air for extensive workings in a coal seam, well known occasionally to evolve fire-damp.—2. The method of working which leaves the goaves or old workings too open, from the imperfect settlement of the roof, and prevents the air from sweeping in an unbroken stream by the face of the workings.—3. The practice of drawing water in the upcast shaft, as not only filling a portion of its area with tubs, &c., but cooling it to a degree greatly to affect the current.—4. Where the upcast shaft is too shallow in comparison with the downcast, the latter having, perhaps, been sunk in higher ground, a tower or stack over the former will remedy this evil.—5. Where fire-damp has been detected in the old breaks, it is improper that the men should work near them, and particularly to the rise, without the use of safety-lamps being enforced.—6. The coal being known sometimes to evolve gas, it is most imprudent to feed the fire of the underground engine with a portion of the return air, which may occasionally be in an explosive state, instead of scaling off a little of the intake air for that purpose.

Such are a few of the points in which the management may effect alterations to prevent explosions. Another too widely spread and fertile source of accidents—the ignorance and recklessness of the colliers—can only be met by increased opportunities of education among the labouring classes; but there is no doubt that occasional inspection on the part of Government, and the gradual infusion of knowledge by a better educated class of underground agents, would be instrumental in raising the moral and intellectual condition of the workmen, at the same time that it would afford them increased security for health and life.

In another column will be found a second communication from "Placer," on the interesting and important topic of the comparative value of investments in mines and railways, in which the present depressed and even ruinous state of railway property is animadverted on with truthful energy, and the more safe and certain nature of mining investment, where mineral experience and prudence are combined, though not perhaps productive generally of *enormous* profits, clearly discussed and proved. In the writer's observations he throws out a hint, which we think might be taken up by the Government, with the chance of effecting much local good in that distracted portion of the queendom—Ireland. Scarcely do we take up a daily newspaper but fresh details of destitution, starvation, and death stare us in the face, trade and commerce at a standstill, the people paralysed by absolute inanition, and the Government looking on with morbid apathy, or doling out its nostrums in the shape of *charity (?)*. The communication of an Anglo-Celt, in our last Number, and an interesting article in our columns of this day, on ancient mining in Ireland, by Mr. D'ALTON, clearly prove that she is equal, in proportion to her extent, to any country in the world in the possession of mineral wealth. Notwithstanding this natural advantage, from the absence of capital and enterprise among her own population and the want of confidence among English capitalists as to the safety of their investments among a people driven to all but desperation by ignorance and want, those few mines which are at work fall of in produce, and the major portion of the hidden treasures of the earth, which might be made to spread comfort and happiness around the districts in which they lie, are unheeded and untouched as useless. Our correspondent suggests that, to encourage the working of the mineral wealth of Ireland, a premium should be offered to every mining company, or individual proprietor of mineral land, for every ton of metallic ore raised, in proportion to its produce; and we do think the idea might be turned to advantage. A comparatively small proportion of the millions advanced to buy food, and thus keep the population in a state of mere animal existence, might be employed in some such manner as an incentive to industry, an encouragement to enterprise, and as a means of establishing that confidence between Ireland and the other portions of the empire, as would greatly tend towards her resuscitation, and much future advantage.

Nor are we without precedents for such premiums for encouraging the productions of national wealth; rewards, if we mistake not, have been given in promoting the fisheries of Ireland—a branch of industry which, although, unhappily, at the present moment almost on a par in depression with her mines, might be made a source of a comfortable livelihood to thousands of families; and as an example to a British Government, there is now a bill pending before the Legislature of New Brunswick to appropriate the sum of 3000*l.* per annum, to be distributed in the shape of bounties, for the encouragement of the fisheries. We call attention to the suggestion of our correspondent, and to the last-mentioned fact, leaving a consideration of the means of carrying it out to those who are interested in the development of the natural wealth of Ireland, and those who, from purely philanthropic motives (and, we doubt not, there are many such), are anxious to rescue her sons and daughters from their present unnaturally fallen and degraded position.

It has long been conceived by shrewd and intelligent minds, who have, from the nature of their avocations, had the most ample opportunities of investigating circumstances connected with the working of our railways, that there exists a something fundamentally wrong in the system, and that the general details are founded on erroneous principles, and open the way to the easy commissions of the most barefaced frauds. The exposures which have lately taken place under the investigation by committees into the affairs of those companies in which Mr. HUDSON has figured, and more particularly the Eastern Counties Company, has at length opened the eyes of the hitherto deluded shareholders; and it is now tolerably clear, that however extravagantly a line of railway may, in the first instance, have been constructed, the jobbing and wasteful expenditure in the working expenses, to say nothing of tampering with the accounts, and transferring items of cost and income from capital to the current workings, and *vice versâ*, has a still greater tendency to bring confusion and ruin upon railway property. In a large company, whose works are spread over 100 or 200 miles, with many hundred officials of all grades to conduct the operations, with large engineering works erected for the construction of engines and machinery, it becomes an establishment of far too great an extent, with such multifarious ramifications in all its details, as to render it next to impossible to obtain the necessary results with anything like reasonable economy; and now, 20 years after the introduction of the system, a light appears to be breaking in upon the railway world, that the working of the lines can be carried out by individuals under contract, at far less expense, and with the abolition of a vast deal of complex machinery, than can be effected by the companies themselves. At the half-yearly meeting of the Midland Great Western of Ireland, the directors, in their report, state that—"Anxious to exercise every economy consistent with the efficient working and permanency of your undertaking, the directors have made further reduction in different branches of the expenditure; and, in the locomotive department, they have let the working of the line by contract, under arrangements which, they feel satisfied, will prove a source of great economy and advantage to the company." And, in answer to a question from a proprietor, the chairman stated the contract was for *one shilling and threepence* per train per mile, which included all expenses of the locomotive department, such as repairs, fuel, &c. The contractors' men would still work under the control of the company's engineer, who would continue to see that the carriages and locomotives were in good condition, and that the traffic was carried on in a safe and efficient manner. Now, without stopping to examine into the general average cost of the carrying department on railways, we will take a case in point, happily in the very neighbourhood, and most applicable in comparison. The Great Southern and Western Company charge the Irish South-Eastern Company 2s. 6d. per train per mile, and we may fairly suppose this to be about the cost of the Midland Great Western when worked by themselves, showing a saving of 50 per cent.—an amount which will add considerably to future dividends.

Without waiting to see the result of this prudent step on the part of the Irish Midland Company, we feel convinced we may, even in this

early stage, congratulate railway shareholders, that the time has arrived when a sounder policy will mark the management of railway property than has hitherto prevailed; and this movement of working the haulage department under contract will, we predict, very shortly be extended to the majority of lines in the kingdom. All the details of railway construction have been, and still are, carried out by contracts; bridges, tunnels, viaducts, and other large works, are all found to be more economically constructed by individual contractors than by the engineers of the companies, and it is only matter of wonder, that a plan so palpably advantageous should not have been struck out before. An individual contractor is of necessity imperatively obliged, for his own safety, to watch every outlay with the greatest care. Waste is out of the question; every atom of material is turned to account; every legitimate advantage is taken of time, place, and circumstance, by which his work is produced with an economical result, which it is hardly within the reach of possibility that a company, with its complex machinery, and without that individual responsibily in character and pocket which attaches to a contractor, could ever effect. We hail this movement as one not only as likely to bring about a great improvement in the returns of railways under the locomotive system, but which will probably lead to the development of other systems in which are inherent the very essentials of successful railway transit—safety, certainty, speed, and economy. A disposition on the part of railway directors to let the working of their lines by contract, will open a new field for the further trial of the atmospheric and other systems, and introduce arrangements which, however valuable and worthy of trial, could by no possible means be introduced even to test them, through the prejudices of the engineering staffs with which railway interests have been surrounded. CUNNINGHAM and CARTER, CLARKE and VARLEY, STRUVE, LAWES, and several others who have been before the public during the past few years, and whose arrangements, from models which have been and are exhibiting, appear to possess some merit, will now have a fair field in which to offer the capabilities of their inventions, and under circumstances in which they could be fairly tested at the smallest possible expense, the rails and permanent way being already found ready for their operation. We have ever been of opinion that the time would arrive when the locomotive will be superseded by the introduction of a plan at once less costly, wasteful, and destructive, and we think this movement likely materially to hasten that period; and, in the meantime, to those scientific men who are devoting their talents and energies to effect this desirable object, we can only say with perfect impartiality—*Palmam qui meruit ferat.*

We give in another column a detailed report of the proceedings at the meeting of shareholders in the BLAENAVON IRON AND COAL COMPANY, held yesterday week; and, considering the former questionable position of the company, the continuous fall in the price of iron, and the unsatisfactory state of trade at the commencement of the year 1848, we think there is some room for congratulation at the present prospects. A committee of inspection having been appointed, consisting of Messrs. WHEELEY, HILL, and JONES, those gentlemen had put their shoulders to the wheel, and been indefatigable in devising the most desirable and likely means of delivering this fine property from the embarrassments which surrounded it. They had principally directed attention to the improvement of their roads for locomotives, to get rid of the formidable charge for horse keep, which nearly overpowered them, the erection of ovens, and the purchase of an engine. By indefatigable exertion, a small profit on the year's workings had been realised, notwithstanding an extra outlay of 6000*l.* in improvements; and it is now to be hoped the company have turned the corner, and are in a fair way for future prosperity. All that was required now, was a general acquiescence to the subscription of 50*s.* per share, to enable the directors to carry out the recommendations of the committee and the manager. The meeting was unanimous in passing a vote of thanks to and confidence in the directors and inspectors, who were acting cordially together; and although a large portion of the subscription remains unpaid, we hope, after the clear exposition of the state of their affairs, and the manifest advantages which have already flowed from an accession of working capital, indeed we cannot doubt but that the minority will follow the example of the majority, and heartily join in the subscription, the paying up of which will confer so great an additional advantage on the property of the company.

In the investigation of the affairs of the EASTERN COUNTIES RAILWAY, and the *exposé* of the malpractices of the honourable Member for Sunderland, and his legerdemain tricks, *a la* HOUDIN, making three out of one, and something out of nothing, in the shape of dividends, thereby enhancing the market value of the shares, if the Court of Aldermen were to require the production of the brokers' books and contracts, some light would be thrown upon the movements of the clique. This subject has been so fully commented upon by the diurnal press, that to repeat the oft-told tale of plunder and want of honesty would be but to occupy space unnecessarily. How few are there in humble life, who could not boast of sovereignty of the rail, of the dictatorship as chief *magistrate* of York, and occupying a seat in the Legislature, who, had they been guilty of a tithe—nay, even a thousandth part—of the acts which have been brought home, would have escaped the ordeal of a trial by jury. A simple application to our civic magistrate would at once have called Mr. FORRESTER'S powers into action, a committal must have ensued upon examination of the criminal party, and, the evidence having been given, and the parties bound over, we can further well imagine a true bill being found by the grand jury, a verdict of guilty by a common jury, and a recommendation, perhaps, to mercy.

It is not our intention to enter upon or follow out the exposure which has been so bruited about as to become noxious to the senses; but we think it is only an act of justice to direct attention to the part which the auditors have played in this *interested*, if not interesting, game. At first blush, we were among the readiest to condemn the auditors, without whose sanction the accounts could not have passed—the shareholders naturally placing confidence and reliance on those officers who, as a part of the body, were self-interested in seeing that the accounts were open and straightforward. We may here observe, *en passant*, that we have but one opinion in common with several of our contemporaries, that the auditing of accounts, involving an expenditure of some 10,000,000*l.* or 12,000,000*l.*, should not be left to gentlemen who have other avocations and pursuits to follow; the auditor is the most responsible officer, and should be independent of the company, and well requited for his trouble, thus ensuring independence and honest attention to the affairs of the company.

We do not for a moment charge the auditors with any lack of attention, or want of ability—indeed, it is only due to them to state matters as they really are, which we think will acquit them from blame, and, at the same time, afford the most conclusive evidence that they at least were "wide awake" to the moves on the part of the "ruler of the destinies of railways," aided and abetted by his coadjutor—the hon. Member for Maldon—who, forsooth, did not object to receiving his 200*l.* as secret service money. Here, then, is a pretty *exposé* of a hon. Member of the House of Commons. However, to the case of the auditors. An Act was passed, some years since, for the formation of the Eastern Counties Railway, which we believe has been *amended*, enlarged, and the powers given, not only to raise money, but for the appointment of auditors, who should examine the accounts and vouch for their accuracy. Months, years, passed away, and the director-general and his staff deemed the appointment of auditors a nuisance, and their services a bore; and, consequently, until a very late period, none were appointed. It appearing, however, to some of the shareholders that in the Act provided for the appointment of auditors, it behoved them to avail themselves of such provision and powers conferred, two gentlemen—Messrs. J. REEVES and E. L. BETTS—were accordingly appointed, who made their report at the meeting held on the 28th Feb., when the committee of inquiry on investigation were appointed; and here we will take the words appended to the account—being the auditor's report:—"We have carefully examined the accounts of revenue for this half-year, and the balances with the ledgers, and find them correct; but the capital being a current account from the commencement of the company, we have not been able to examine so thoroughly as we could wish; but prior to another meeting this shall be done; and we further recommend that the capital account be closed as early as practicable, and that for the future a separate account be kept of all additions that may be made from time to time." This, we think, was sufficient to raise a doubt in the minds of the proprietors, and hence the appointment of the committee; their services, and the *exposé* they have put forward, have done much; but we believe much more remains behind, and we must await the result of the further inquiries which must needs be instituted. In the meanwhile, we would ask, if criminality be attached to any one, whether he be member of the Legislative Assembly or otherwise, what is the course which either the magistracy, or Government, feel it their duty to pursue?

BLAIR IRON-WORKS, AND ESTATE OF PITCON.—On Wednesday, the 25th April, the Blair Iron-Works, and the estate of Pitcon, were exposed for sale in the Exchange sale rooms, Glasgow—the former at the upset price of 50,000*l.* and the latter at 37,000*l.* There being no bidders, the sale was again adjourned.

METHOD OF SOLDERING CAST-IRON WITH WROUGHT-IRON.—The following process has been recommended for this purpose:—First melt filings of soft cast-iron with calcined borax in a crucible; then pulverise the black vitreous substance which is thereby produced, and sprinkle it over the parts which are intended to be united; after which, heat the pieces of cast and wrought-iron and weld them together on an anvil, using only gentle blows. This method is peculiarly applicable for the manufacture of iron articles which are intended to be made red hot, and are required to be impervious to fluids or liquids; as such a result cannot be obtained by simple fastening

ELECTRO-MAGNETISM AS A MOTIVE-POWER.

Since the great discovery of Œrsted, that the passage of a galvanic current round a piece of soft iron, by means of a coil of copper wire, converted it into a powerful magnet, and that the breaking of the current again took away its magnetic power, numerous have been the endeavours to take advantage of this principle as a means of obtaining motive-power, applicable to the purposes of locomotion by land or water, the working of machinery, and indeed as a substitute for the steam-engine. Various models have been constructed, which have shown the practicability of obtaining continuous motion; but, from the rapidity with which the magnet decreases in power, with the most minute increase of distance from the object of attraction, the great difficulty which has never up to the present moment been surmounted, is the obtaining sufficient power, except at great cost; and the impossibility of obtaining a stroke of the crank rod, of the required length for the general purposes of machinery. It has been left for Mr. Sören Hjorth, a native of Denmark, to obviate this hitherto insurmountable difficulty, and, by a peculiar arrangement of his elements, he can command any length of stroke, without in the least degree depreciating the intensity of the galvanic current or the magnetic power. The model, which we have had the pleasure of inspecting while in operation at the engine-works of Messrs. Robinson & Son, Pimlico, is probably equal to about the power of a man, and the principles on which it is constructed are different to anything we have before seen, or read of. Two hollow cylinders of soft iron, in connection side by side, forming together a complete horse-shoe magnet, are surrounded by coils of wire, in which work two pistons of soft iron, also surrounded with coils of wire, forming another horse-shoe magnet; the consequence being that, on passing the galvanic current, both cylinders and pistons mutually attract each other with great force. The two pistons are attached to a crank on the driving shaft by a connecting rod, and the cylinder magnets oscillate in a similar manner to oscillating steam-engine cylinders. At the other end of the shaft is a similar arrangement, the positions of the cranks while in motion always being diametrically opposite to each other. The conducting wire from the battery leads to two metal springs, on which a point, in connection with the iron cylinders and pistons, completes and breaks the circuit at every stroke—thus alternately making each series of magnets the moving power, and keeping up a regular and continuous motion.

The practical demonstration of the principle, from the specification of the patent, is that of passing moveable magnets into hollow magnets, the inside part of which are conical, and also by placing a number of rods or points of different lengths in the hollow magnets, which rods pass through corresponding apertures in the moveable magnets. The consequence of this arrangement is, that the respective magnets mutually attract each other by the superficial approximations of their several parts, which, during the whole stroke, present themselves, at different points, at the poles of the magnets, thus exercising their power with a direct force, without being limited to any length of stroke, that depending on the number of rods employed. To prevent the destructive effects to the machinery of the electric spark, which has been found to be great, when developed with any intensity, the patentee arranges the communicator and current alternator in such manner that the electric fluid is, according to its intensity, divided into several separate currents, which pass round the respective magnets without communicating with each other; and, by keeping the points of contact slightly moistened with a dilute acid, no actual spark is brought out on completing the circuit.

The patentee proposes, in applying this principle to locomotive engines, to magnetise the wheels by magneto-electricity, produced by their own revolution; and the required adhesion thus gained will enable light engines to draw an enormous weight. That there is a mighty power in store for the use of man in the hitherto inextricable mysteries of electricity, we have long believed; and the continuous, the almost daily discoveries which are made, leads us to infer, that such belief is founded on reasonable grounds. Mr. Hjorth has overcome one, and hitherto the principal difficulty, in the application of galvano-magnestism as a motive-power—namely, the obtaining a sufficient length of stroke. Increasing the powers of the battery, or the intensity of the current by additional coils, will furnish the power; and from a deep consideration of the principles evolved, and the facility with which the model works, it appears to us only necessary to establish its economy to render the invention industrially valuable. The patentee is now constructing an engine of much more powerful dimensions, having four double magnets, by which a stroke of 13½ in. is obtained. This engine will be finished and in operation in one or two weeks, when we hope again to refer to this interesting subject, under an impression that its practicability is fully established, as a powerful prime mover.

It is a singular coincidence, that on the same day on which we inspected the above model, we received the following memorial and report of a committee appointed by the Legislature of the United States, to inquire into the practicability of electro-magnetism as a motive-power; from which it appears that continuous exertions have been made by at least one individual in America, and successfully too, at the same time that the science has been undergoing investigation in this country. The memorialist is Prof. Page.

"That the memorialist represents that he has discovered a mode of applying electro-magnetic power for the purpose of navigation and locomotion, and as a general substitute for the dangerous agency of steam; that he has been engaged in the investigation of this subject for more than 12 years, at great expense and sacrifice; that he is now able to demonstrate the availability of the electro-magnetic power, as a mechanical agent, upon a scale of magnitude commensurate with his limited means; that means larger than his own would be necessary to test the availability of the power in its application to the great purposes of useful navigation and locomotion; that he deems his invention worthy of national encouragement, upon the same principle that encouragement was extended by Congress to Professor Morse for telegraphing by electro-magnetism; and he prays that a select committee may be appointed to examine his invention, and to witness his experiments, and that an appropriation may be made to enable him to apply his invention on a large and useful scale. In pursuance of their appointment, the committee attended the lectures now in course of delivery in this city by Professor Page, on electro-magnetism, and witnessed his experiments in the application of that power as a mechanical agent, and are satisfied that his past success, with his limited means, justifies the expectation of further success from enlarged means. The power was exhibited (among other ways) in the suspension of a mass of iron of 50 lbs., without visible support, and in the capacity of the great electro-magnet to sustain all the weight that could be crowded upon it, consisting of masses of iron and several persons, and believed capable of sustaining a weight of 10,000 lbs. Its application was exhibited in the propulsion of minature engines, and in driving an engine of considerable power, by which boards are planed with ease and smoothness. That the power is great, and can be applied to the useful purposes of navigation and locomotion, the committee see no reason to doubt. The enquiry which rests upon their mind is as to the cost of the production of this power, and whether it can be produced at a rate to justify its common use as a mechanical agent. On this point experience can be the only safe guide, and thus far experience is favourable. Dr. Page informs the committee that he has succeeded in largely reducing the cost of production, and expects to be able to bring it within the limits of an economical power, especially when the saving of life, as well as money, shall be comprehended under the idea of economy—safety being one of the great objects of his invention. Upon the examination of the power and application of Professor Page's invention, the committee deem it an object of national interest, that its entire ability be completely tested; and the sum of $20,000 being deemed necessary by him for that purpose, they recommend an appropriation accordingly, and direct their chairman to propose it as an item in the Naval Appropriation Bill."

CONTRACTS FOR COAL, IRON, &c.—The Board of Admiralty have notified that, on the 15th inst., they will be ready to enter into a contract for supplying her Majesty's dockyards, the Admiralty, and marine offices, with coals. Their lordships will also, on the 8th inst., contract for supplying her Majesty's dockyards at Woolwich, Chatham, and Portsmouth, with soft melting pig-iron.

COAL FOR INDIA.—The East India Company will, on the 16th instant, receive tenders for supplying 3000 tons of coal, of the under-mentioned sorts, to be delivered at Aden:—West Hartley, Carr's, Buddle's, Davison's West Hartley, Hartlepool West Hartley, Stewart's Wall's End steam coal, Glasgow hard splint (screened), and Risca black vein (hand picked).

Tenders will also be received on the 9th inst., for supplying the company with ironmongery, pig-iron, and pig-lead.

COAL FOR THE FRENCH POST-OFFICE MAIL STEAM-PACKETS.—The following quantities of British coal contracted for by the French Post-office Department, are to be delivered during the present month:—Calais, 250,000 kils.; Marseilles, 1,400,000; Malta, 1,500,000; Athens, 200,000; Constantinople, 300,000; and Alexandria, 600,000—total, 4,150,000 kils. The contracts for sheathing copper, &c., for the use of the National Marine Department, has not yet been announced, the quantity required not being ascertained until the close of the Admiralty inspection, as to the state of the ships of war and steamers at the different arsenals and dockyards throughout France.

IMPROVEMENTS IN TUBES FOR LOCOMOTIVES AND MARINE ENGINE-BOILERS.

We have much pleasure in calling the attention of the engineering world and our scientific friends generally, to the important patent recently obtained by Messrs. Richardson and Co., of the Patent Tube Works, Darlaston, Staffordshire—thus affording another confirmatory proof of the native ingenuity of our country. Their improvements relate to the mode of producing brass or copper tubes for the boilers of locomotive and marine-engines, without seam or joint. These tubes are cast in short hollow cylinders, according to the length of the tube required when finished; but instead of being elongated by means of a drawbench, through holes or dies, as at present practised, they are passed through a pair of grooved rollers of great diameter and weight, with a steel mandril fitting closely in and running through the entire length of the tube, the mandril and tube passing through the rollers, thus subjecting the metal to great compression during the process of elongation—so that the pores and fibres of the metal are so effectually closed, as at once to destroy the objection raised with reference to the drawn tubes. The attainment of these important desiderata needs no comment from us.

Another part of these improvements consist in the application of the same process for the manufacture of copper rollers used in cotton printing, and other such purposes, which can be produced at a less cost than by the present modes of working them. Messrs. Richardson and Co.'s improvements are particularly adapted to such purposes for the reasons before stated with reference to the boiler tubes. We shall take an early opportunity of reverting to this important and interesting subject.

IMPROVEMENTS IN THE MANUFACTURE OF STEEL.

[Specification of patent granted to Alfred Vincent Newton for certain improvements in the manufacture of steel; a communication from abroad.]

This invention has reference to the method, process, and apparatus by which the metal may be refined, and, during the process of refining, have currents of atmospheric and gaseous air forced upon it, so as to convert it into steel; also to preparing the metal previous to submitting it to the process of conversion into steel.

The apparatus by which the method, or process, first mentioned is carried into practical effect, consists of the converting furnace, to the tuyere whereof a blast pipe is attached, formed into three passages, provided with suitable valves for regulating the air currents. Two of the passages of this blast pipe communicate with two iron receptacles, placed in front of the converting furnace—the centre passage passing between them and to the front of the receptacles. These receptacles are provided with gratings and ash pits beneath, and with covers for closing them.

The process of converting the metal into steel by the aid of this apparatus, consists in allowing the air to pass into the two passages of the blast-pipe communicating with the receptacles, such receptacles being filled with charcoal, which is then ignited, and the receptacles closed by means of the covers; the air thus passed through the receptacles is formed into carbonic oxide, and enters the tuyere of the converting furnace, where it is mixed with such a quantity of atmospheric air from the centre passage, as may be judged desirable, though the patentee states, that a large quantity should generally be avoided. By means of the valves, the quantity of gaseous or atmospheric air can be regulated by the operator. To prepare the metal for the process of conversion, the patentee states, that if it be pig-iron, he melts it sufficiently in a cupola furnace, to which he applies the apparatus above described; but if it be wrought-iron, he uses a plumbago crucible, in which the metal is to be placed, being properly stratified with charcoal, or carbonaceous material.

In conclusion, the patentee claims:—1. The apparatus described.—2. The process described.—3. The method of preparing the metal previous to conversion.

Patent-office and Designs Registry, 210, *Strand*, *May* 3.

THE BRITANNIA-BRIDGE.—We hear from the Menai that a few weeks back Mr. Stephenson settled the plans for crossing and placing the first of the gigantic tubes for the Brittannia-bridge, and that several tidal experiments were made in his presence; by Captain Claxton and Mr. Edward Clarke, since which two of the wooden pontoons which were at the Conway have been brought round, and the other four are shortly expected to be delivered at their destination. In addition to them two iron pontoons of increased dimensions have been built on the spot, and are ready for launching. The rock under the tube No. 3 (the first which it is intended to move) has been blasted, and the way made nearly clear for the pontoons. The mason work of the Britannia pier is fast progressing, and it is said that the first tube will be crossed and placed at the latter end of the month or early in June. Visitors by shoals are daily inspecting the site and the tubes, and it is expected that every hotel and lodging within 20 miles of the bridge will be full to overflowing long before the day. Houses at Beaumaris are being taken already, early as it is in the season. Capt. Claxton has been there some days; Mr. Stephenson is expected in the course of a week. The tubes appear to be nearly all finished, and all the mason work, except that of the Britannia pier, is quite done.

IMPROVEMENT IN THE SWIVEL BRIDGE.—As swivel bridges are of absolute necessity in railway works where they cross canals, dock entrances, or other navigable waters, it is highly desirable that they should be so constructed as to admit of rapid and immediate action, and, in most cases, the power required to raise them from their bearings before they can be swivelled round, renders the operation slow and difficult. Mr. Dodd, of St. Vincent-street, Glasgow, designed one for the Midland Junction Railway, to cross the Clyde Canal at Falkirk; and the principle is applicable to lock gates, enabling one attendant to manage both sets of gates with one hydrostatic pump. The two main beams of the bridge are constructed of hollow rectangular panelled tubes of wrought-iron, stretching across the water way; they are stayed transversely by wrought-iron tension rods and diagonal timber frames, and are further supported from the centre cast-iron pivot by four cast-iron box-beams, which act as struts, and convey the strain from the roadway to the top of the pivot. Two open ornamental cast-iron frames rest one on each side of the upper circular plate of the pivots, and are attached together at top by a capital, and carry the saddle for two diagonal tension rods, bolted to the girders, which they stiffen to a great extent. The pivot is in form of an inverted truncated cone, cylindrical at its upper end, where it is guided by a set of stationary anti-friction pulleys. The bottom enters a small chamber through a water-tight stuffing-box, in connection with a hydrostatic ram, by which water can be pumped in beneath the cone, which will elevate the whole structure, sufficient to clear the bearings, when it can be swivelled round. This is effected by two hydraulic rams, placed horizontally at right angles with each other, working a shaft, around which, and the cylindrical top of the pivot, is an endless chain, the communication of the movement of the rams to which may be effected by the adoption of various mechanical arrangements, according to circumstances.

THE FLOATING RAILWAY BRIDGE FOR THE FRITH OF TAY.—This novel and extraordinary piece of naval architecture has had her engines fitted at Mr. Napier's dock, at Lancefield, and the authorities of the railways and their friends made an experimental trip down the river to Greenock and back on Saturday last. The vessel is of iron, 175 ft. long, 34 ft. broad, and 10 ft. deep, the bottom being a very flat curve; both ends are alike, and quite square, so as to abut against the quay, and receive the trains on deck from either end. The deck is flush, and clear fore and aft, and on it are three lines of rails, so as enabled it to take the longest train likely to require it. The steering wheel is amidship, elevated between the paddle-boxes, and connected with the rudders at each end by long chains, as the vessel will not be turned, these rudders will, of course, be used alternately, as either end becomes the stern. There are two engines entirely independent of each other, and instead of a shaft connecting the paddles, each is moved solely by one engine, by which means extraordinary command is obtained over the movements of the gigantic machine, independent of the rudders. The diameter of the cylinders is 56 inches, with a 3 ft. 6 in. stroke; the valves work with great ease, and each engine is 100-horse power. The valve gear is on deck; there are two eccentrics which are thrown alternately in and out of gear, as either end of the vessel becomes in turn the head. The boilers are amidships, with a clear space all round for facility of cleansing and repairs. She draws but little water, made eight knots per hour, and is expected to be in operation in two months. As a proof of the mathematical correctness in the construction of machinery at the present day, we may state, that notwithstanding the engines were started for the first time on actual work, they immediately worked to perfection, and not a screw had to be altered during the trip. There are two small extra pumps for supplying the boilers, in case of the water running low, and every precaution appears to have been taken to prevent accident. It was curious to observe the loss the captain was occasionally at in giving orders to two independent engines for the first time in his experience, and as both become starboard and larboard alternately, these nautical phrases must be thrown overboard, to make room for more definite terms; this difficulty a little experience will remove. At Mr. Napier's works are shown two steam-engine cylinders, stated to be the largest yet constructed, being 96 inches diameter; they are intended for the American mail steamers, *Asia* and *Africa*, and when completed the engines will be nearly 900-horse power.

Original Correspondence.

RAILWAYS AND MINES.

Banquo.—"The earth hath bubbles as the water has,
And these are of them. Whither are they vanished?"
Macbeth.—"Into the air; and what seemed corporal
Has melted, like breath into the wind.
Would they had staid"—RAILWAY DIVIDENDS.

SIR,—It is with no desire to exult over the fallen fortunes of railway managers, and their dupes (the public), that we again venture to intrude upon your valuable columns, with a few additional thoughts, in continuation of a paper you did us the honour to insert on the 10th of March last under the above head; for, whilst in ordinary and tranquil times, the question of the safest mode of investing capital forms an interesting subject for inquiry and discussion, its importance is immeasurably enhanced by the events of the hour as affecting railway property—events which have reproduced, in vivid colours, those pages of history, reminding the world that there has been such a thing as a SOUTH SEA BUBBLE, and such a person as "MISSISSIPPI LAW;" so after an interval of 130 years, there is found a mighty compounder of railway dividends, and professor of other tricks of *legerdemain*, whose name will, in its turn, become equally notorious and unenviable, although it is yet to be known to what extent great personal wealth has been accumulated by indirect means, and how far the individual, HUDSON, has involved himself in legal responsibilities which may make him as bankrupt in wealth as he is at present in character. The worst may remain behind. It is enough at present, however, to leave him in the hands of "committees of investigation;" the avalanche once detached from its lodgment on the summit of the Alp, never stops until it reaches the valley.

It will be remembered by such of your readers as have been attracted to the subject, that the object of our former paper was to show that railways were then *becoming* unsafe investments; and, perhaps, it is not saying too much, to assert that the prediction has been borne out by events to a much greater extent than was either predicted or insisted upon. In seven short weeks there has been a gradual subsidence in the value of railway property in England, not at all influenced by circumstances of *panic*, the aggregate of which will present a startling amount of loss; nor has this subsidence, or the causes of depression, arisen wholly from the painful disclosures in question. On the contrary, let any one direct attention to the returns of traffic, and it will be seen that in the majority of lines there is a gradual falling off in the returns, as compared with 1847, when a less number of miles were run over by the trains. In 1847 the NORTH-WESTERN revenue was 40,000*l.* per week, and is no more now, although important extensions and branches have been since opened. Since 1847 the GREAT WESTERN has increased only 3500*l.* per week, with 51 miles more of line working (the distance from Exeter to Plymouth), and the same mode of comparison applied to other lines will produce similar results. But these are minor facts compared with those bearing upon the actual loss of capital sustained by the public, in consequence of the depreciation in the shares. It will be interesting to state how this branch of the matter stands.

Consulting the published lists, it will be found that there are some few lines only in which the number of shares are stated, the capital subscribed in most being converted into "stock," and money, therefore, substituted for shares, making it difficult for the uninitiated to arrive at so clear a result, as is shown in the following table of SHARES, into which the GREAT WESTERN is divided. It is hoped that placing it before the reader in this form will contribute to its being more easily understood and remembered.

GREAT WESTERN RAILWAY.

No. of shares.	Paid up.	Price Mar. 10.	Price April 28.	Difference or loss.
25,000	£100	£97	£88	£225,000
28,000	50	47	42	140,000
93,000	23	20	18	180,000
37,500	20	19	16	111,000
69,700	15	13	12	69,700
253,200 Total shares.				£733,000 Loss.

SEVEN HUNDRED AND THIRTY-THREE THOUSAND POUNDS OF LOSS IN SEVEN WEEKS IN ONE RAILWAY; and that one of the best in position and management, affords a key to the causes of the universal complaints of depression in manufactures and commerce, the diminished consumption of all articles of luxury, the miserable meeting of the Art Union, the empty first-class carriages on every railway in the kingdom, and other "signs of the times" too numerous to mention; and as there are in operation in the United Kingdom 4500 miles of railway, the Great Western may be regarded as a fair basis for a calculation of total loss in the said seven weeks, from which it would appear that upwards of THIRTEEN MILLIONS STERLING may be the amount of depreciation in the value of railway stock; but as we have no desire to "cook the account," and, on the contrary, can afford to allow a liberal discount therefrom, we will assume the loss at the frightful sum of TEN MILLIONS STERLING, which has been sunk, perhaps irretrievably, in these delusive undertakings.

As an episode to these details, and, as it may be, a set off against the possibility of the above enormous sum of loss being merely approximative, it may be stated, in reference to the EASTERN COUNTIES' accounts and investigations, that it is proved the sum of 62*l.* per share has been paid as dividends from 1845 to 1849; whilst the earnings applicable to dividends (nothing, however, having been allowed for wear and tear of locomotive stock) have only reached 28*l.* per share for the same period of four years. A glimpse of a dividend in this line will be a most welcome sight, whenever it becomes visible, to its disconsolate and most unlucky shareholders.

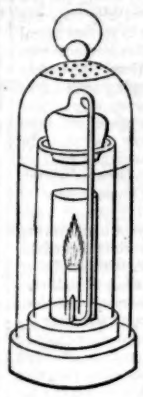
To turn from great things to small. We must be excused referring to our former paper, wherein we stated, as a reason for recommending investments in MINES in preference to RAILWAYS, that in the latter "capital was sacrificed in *masses*; whilst a large quantum of mining experience might be gained without the risk of serious loss, and that the gain in one successful adventure often covered the loss upon half-a-dozen. To show this position of the two interests more clearly, we may state that the total annual value of British ores of lead and copper, sold in Cornwall and Wales, does not reach beyond ONE AND A QUARTER MILLIONS STERLING; and supposing the speculator in mining shares on the average gets 20s. in 1*l.* and *no profits* upon his outlay, there has been no great harm done, nor can there ever be, since the losses of some individuals must be placed against the gains of others; and in so small a comparative field for operations, no adventurer, exercising common prudence and foresight, can lose a *mass* of capital, as in railways. This proposition is so obvious, as to render its further amplification superfluous; but, as a matter of fact, the fluctuations in the value of mining shares are *natural*, and vary with the phases of each undertaking, especially where dividend-paying mines are concerned—all others being, as formerly shown, speculations more or less, and divisable into classes, in which the chances of gain depend more upon the choice made, and the *mining knowledge* brought to bear upon the purchase, than upon any inherent disqualification in the speculation itself.

We are now brought to offer a renewal of our advice—to *invest in mines*, carefully beforehand analysing the merits of the undertaking in reference to its class—whether one paying dividends; one upon which an outlay has been made and ores proved to exist; one which presents *indications* of ore at certain depths, or a mere sett or mining plot, upon which no capital has been expended, although presenting such surface appearances as to warrant a belief in the existence of mineral below. Out of these classes grow another, and a large one too—namely, mines that have been worked or explored for *several years*, but still in the hands of the original body of shareholders, who, having paid all and received nothing, become tired of the undertaking, especially when their ranks have been thinned by defections, insolvency, and other causes.

In such concerns, almost universally, shares are to be had *for the cost of the materials of permanent use to the mine*; and, supposing the prospects of such an adventure are demonstrated to be fair, and returns of ore in sufficient quantity to pay dividends, sooner or later, probable, we know of no investment in this particular branch more safe; since, should it not give ultimately *large*, although it may give in some instances *very large*, profits, it *cannot* result in any important sum of loss. The leading authority of the day, upon all matters of stirring moment, advises the public in general to understand "that, if they meddle in railway shares until a system of open and intelligible accounts shall have been established, they know not what they are buying or what they are selling; they are, in point of fact, taking a leap in the dark." The choice is, therefore, now before them.

We have been much gratified, Mr. Editor, in reading, in your last Journal, a most important and talented communication, signed "ANGLO-CELT," on Irish mines in general, and those of the Cork district in particular, and, although the writer notices our letter of the 10th March, we are, so far as we are aware, strangers to each other. However, it so happens that we have had, heretofore and lately, our attention drawn to the mines of the south-west of Ireland, and are warranted in expressing our strongest belief that the district in question contains large deposits of mineral treasure (chiefly copper), and numerous mines in which lodes are developed far beyond any speculative point, but now unhappily in a state of utter prostration, from the entire absence of capital in that devoted country. Well may "ANGLO-CELT" make an appeal to English capitalists (and at what better time could he make it than when they are throwing away millions in railways) to "come over and help us," and find a reward in abundance of ore, waiting only the strong arm of the miner, now enfeebled by inaction and poverty, to bring to the surface; nor will such appeal, we are persuaded, be made in vain; nay, it is even the *duty* of the British Legislature to devise the means of giving employment to the Irish labourers, and to encourage the ingress of English capital for mining and other purposes, by granting charters of incorporation for mines, as it appears they have already done to the Western Mining Company of Ireland, giving the important security of limiting the liability of shareholders, or, what would be still more to the point, OFFERING A BOUNTY OF SO MUCH PER TON UPON EVERY TON OF ORE RAISED IN IRELAND AND SOLD IN SWANSEA. With some such stimulus as is really wanting to persuade the English capitalist to open his purse to Irish enterprise, who can say what magical changes may not be effected in the district so graphically described by "ANGLO-CELT," who, we perceive, dates from a "MOUNT," upon which we might really one day see, "in our mind's eye," the "ANGEL GABRIEL" presiding over smiles and happiness, instead of, as at present, over a landscape of utter desolation, and the personification of everything wretched in the human existence.—PLACER: *London, May* 1.

HORSLEY'S SELF-SUPPORTING SAFETY-LAMP AND OXYGEN GENERATOR.



DESCRIPTION.—An oil-lamp, with the flame enclosed in glass cylinder; ring support, and small metal crucible, for holding materials for generating oxygen, with head and bent tube, the latter passing into a slit, or break, at the lower part of the glass cylinder; an exterior frame, with copper dome, and perforated so as to allow of the exit of hot air, &c.; the lower part of the frame, being encased with a cylinder of talc, or horn, nicely fitted.

MATERIALS USED.—Powdered chlorate of potass and powdered peroxide of manganese. The flow of gas to be regulated by the height of flame, which can be raised or depressed by rack-work.

SIR,—Notwithstanding the many illiberal criticisms and remarks passed by some, and the approbation of others, in respect of my former proposition of a safety-lamp, I am in nowise disconcerted thereat, nor am I disposed to relax in my endeavours, in common with others, to attempt some good in the way of lighting and ventilating mines. The proposition I have now to make will, I am sure, be considered novel, if not ingegenious—viz.: a self-supplying and perfectly intact lamp, and one wholly independent of the air above or below ground. How far it may be of use, I leave to the consideration of those who profess to be more acquainted with the practical working of mines than myself, my endeavours, as a chemist, being solely confined to defeating the destructive element, hydro-carbon. It is possible some may urge against it the expense of the materials used—viz.: equal parts of powdered peroxide of manganese and chlorate of potass—the latter is now comparatively a cheap article, being sold at about 2s. per lb. A very slight heat only is required for evolving the gas, whose flow is quite under control, depending upon the amount of heat applied; and, if the flame be adjusted by rack-work, can be regulated at will; the light, of course, will be extremely brilliant. I am not aware that such has ever been suggested before. JOHN HORSLEY.

Ryde, Isle of Wight, April 18.

VENTILATION OF MINES—THE STEAM AND FURNACE SYSTEMS

SIR,—The importance of the best means of ventilating coal mines being adopted (as suited to each particular case) is of such magnitude as to render it most desirable that the comparative efficiency of all known modes should be impartially investigated, published, and judged of. On this consideration, in part at least, I am induced to correct an erroneous statement contained in a letter which appeared in the *Mining Journal* of 28th April, signed "Carbon," more particularly as it purported to be a mathematical conclusion—a disguise calculated to induce confidence, if not discovered to be erroneous. "Carbon" does not seem to know that it is a tolerably well-ascertained fact, and in accordance with reason, that the velocities of currents of air are proportional to the square roots of the forces producing them; or conversely, that the forces requisite to produce currents of air are proportional to the squares of the velocities of such currents, or, what is the same, the quantities circulating in a given time. And since the retarding forces, or friction, of currents of air in any given gallery, or area, are proportional to the forces producing the currents, or to the squares of the velocities of the currents, the friction may be neglected, without error, in any merely comparative calculations, where the gallery, or area, remains unaltered. Now, in order to ascertain the comparative worth of a Seaton Delaval furnace, and a Seaton Delaval steam apparatus, let us take a furnace as the dynamic unit, that is one-half the sum of the two furnaces, seeing that they are applied to two distinct pits; and it will appear, from what has been already stated, that the forces producing a circulation of 53,058 cubic feet per minute, and of 50 per cent. more (79,359), are to each other in the proportion of 4 to 9, being in the ratio of the squares of the velocities, or quantities in a given time. From which (since 9 — 4=5) it appears that the comparative effects of two furnaces and one steam apparatus are to each other, in this instance, in the proportion of 4 to 5, or the effect of one furnace is to the effect of the steam apparatus as 2 is to 5, or as 1 is to 2½.

A calculation, clearly showing that the force exerted in producing ventilation by the steam apparatus, in the case of Seaton Delaval, was equal to that which would have been produced by the addition of two and a half furnaces, to act in conjunction with the two existing furnaces. From which it would appear that the steam apparatus was calculated, if acting alone, to circulate 58 per cent. more air than a furnace acting alone, because two and a half furnaces would be required to produce such an effect.

May not "Carbon's" title to be classed with those who combine theory with practice be disputed? The less deep any particular pit is, the more comparative benefit can be derived from steam ventilation, as compared with furnace ventilation, since for all ordinary depths the quantity of air circulating in any particular mine, by any steam apparatus, would be the same, whilst the quantity circulated by any furnace would decrease in proportion to the square roots of the depth of the pits reaching to such mine. Over and above which, two furnaces combined at any particular pit (as I have known) might be little better than one good furnace at such pit; whereas, the application of a steam apparatus might give a quantity of air which could not have been obtained but by sinking an additional pit, had not other means of ventilating than that by furnaces been resorted to. How far such a mode of ventilating will, on further trial, prove to be like buying a guinea at five times its value, "Carbon" may perhaps be better able to state after it is further tested. The apparent impracticability of applying the steam apparatus to any pit where coals are to be drawn may, and in my opinion will, be overcome, unless a better mode of ventilating be discovered previously; but should this not prove to be so, there is nothing to prevent its application under other circumstances. Nor is it commercially impracticable, as "Carbon," states; and wherever a shaft generates as much water as the boiler would require, or wherever water is tubbed out of a pit, it would be no difficult matter to contrive a self-feeding apparatus in connection with the boiler; in fact, I have distinct ideas by which the self-feeding apparatus could be applied, and also by which the steam ventilation could be applied to a pit where coals are drawn.

The remarks of "Carbon," relative to the disbelief by the "Manchester folks" of the statement made by the north country viewers, as to the quantity of air circulating in their mines, is little less than an acknowledgment that the Manchester viewers do not succeed in getting such quantities of air; and when it is remembered that many statements as to the quantities of air are made by men of high repute, even on their oaths, it seems probable that the ill-managed mines lay nearer Manchester than Newcastle. J. J. A.

Loughor, Glamorganshire, May 1.

VENTILATION OF MINES.

SIR,—The subject of mine ventilation being of late much discussed, perhaps you will allow me to add a few observations—not with a view of advocating any particular plan, but to endeavour to do away with objections which have been raised against most mechanical means, on account of their adoption requiring the exclusive use of one shaft. The plan I suggest (although, perhaps, already adopted without publicity) is to place a large fan at a short distance from the bottom of the upcast shaft, and a strong air-tight door placed between the ingress to and egress from the fan; of course, all air on one side the door might be made to pass through the fan before it could arrive at the other side, and, consequently, by the working of the fan, be blown, as it were, up the upcast shaft. Perhaps the steam jets might also be used in a similar situation, although it would, I fear, be difficult to place them (on account of the steam) so as not to be in the way of working the shaft. The method I propose to give motion to the fan would be by an endless chain, rope, or, best of all, a gutta percha band, set in motion by a steam-engine near the pit top, and in which band, at the bottom, might be slung a sheave, the axle of which should move in a perpendicular groove, so that the shortening or lengthening the band would make no difference in its friction on the sheave, the weight of which alone would always be sufficient to ensure its transmitting power that might be given it by the engine, and from a drum on the spindle of this sheave, the motion could be given by another strap to the fan. As we have in England miles of railway worked by endless ropes, I think practical men will see no difficulty in carrying out the foregoing suggestions. It is not, however, the supplying a large quantity of fresh air alone that will altogether prevent explosions, even in a well-regulated colliery, as those best know, who have had the superintendence of such, but to ensure the desired result, as implicit obedience to orders should be observed in a colliery as on board a man-of-war. P.

South Wales, May 2.

ACTION OF THE SUN'S RAYS ON A STEEL BALANCE.

SIR,—Perhaps one of your scientific correspondents would solve the following question:—I have a balance, or assay scales, which is in a glass case. Having allowed the beam power to play by raising the scales from their rest, I have watched, with some curiosity and interest, an action which would appear to me to be influenced by the sun's rays. When the sun does not play upon the window in which the balance is placed, the scales are perfectly quiet; but so soon as the sun has power, either by heat, or from some other cause, I find the scales to be in continued action, rising and dropping full ⅛th of an inch; but upon the sun being obscured, or going down, the beam and scales resume their wonted composure.

Now, Sir, I doubt not your talented correspondent, Dr. Murray, or some other, will enlighten me as to the cause to which I am to attribute this peculiar province of my balance. It is quite clear I must remove it from its position when I require it for accurate returns; but the object I have in view in addressing you is to ascertain the cause to which is to be attributed this vibration. I shall observe more closely the action as the hours pass (its situation being due south), and will advise you the deviations which may take place.—H. E.: *Temple, May* 2.

COPPER SHEATHING—No. X.

SIR,—In the hope of promoting this discussion, I reply to a "ROASTER MAN'S" question as readily as if he was not already two answers in my debt; and as gravely as if his touch at the "12 per cent. surplus copper," did not smack of a double meaning; or as if such a comprehensive question, anticipating some of the chief objects of the proposed discussion, could be answered, in due detail, in a letter instead of a treatise; or could be answered *at all*, with the condition of "12 per cent. surplus copper, as fine as the prill."

1. It is unnecessary to tell a Morfa man, that we cannot get more copper out of the ore, than there is in it: that any "surplus" beyond that is not copper; but that it has been my avowed chief object in this discussion, to know (and be able to regulate) what it really is, so as to suit the varieties of metal to their fittest purposes.

2. Further; however clean the copper may be extracted, or the surplus alloy known and controlled; there is another condition not less essential—viz.: economy of time and labour, and facility of execution.

3. With these objects in view, the mixture of ores might be devised, not only for fluxing easily, and yielding so much copper per cent.; but also, for the injurious metals to scorify each other, without acting on the copper; and slag off early, leaving the regules with little more alloy than iron, and *occasionally* a little tin or zinc—such mixture varying, of course, with the varieties of ore.

4. After sufficient calcination of such regule, to get rid of most of the volatile contaminations (with alternate fusions if needful), the simplest and most complete (and probably the most effective) means of getting out all the copper, "as fine as the prill," seems to be direct precipitation by iron (aided by charcoal or select anthracite). But in this one item, and its relation to the process now in use, a dozen columns may well be written.

5. What real "surplus *copper*" can be obtained, by this or other processes, may be better known, in the course, or at the end, of the present discussion (it it proceeds); but it must depend, not on the process of smelting only, but more or less on the appropriate mixture of ores, to promote mutual scorification of the alloying metals, without reaction on the copper itself.

These items must be regarded as deduced only from laboratory experiments, founded upon the published accounts, British and foreign, of the various processes of copper smelting; my little experience of that process, on the working scale, in this country, being due to the kindness of a friend, without whose express consent I am not at liberty to make any use of it for publication.

And lastly, with respect to "A ROASTER MAN'S" promised information in return, let me suggest to him, that it should include the means of controlling, or at least discriminating, the kind as well as quantity of alloy; without which his "guarantee" must still be subject to uncertainty.

I have also to acknowledge the communication from "GERMANICUS," whom I hardly need assure of my not only willingness, but desire to keep up the discussion, in case of a reciprocal manifestation on the part of those more interested. It is not of their seeking, but mine, and I have not to blame them for neglecting it; but if such information or chemical knowledge as I possess is worth their desiring, it is to be obtained only by reciprocating such information as I require.

With respect to the Alten copper, that is not exactly to our purpose: what we want is some old sheathing, which has stood 20 years' wear, in the tropics and elsewhere; and some new of the same make, or at least from the same ores and process of smelting. It should be sheet, not cake, because the latter has not undergone the trying mechanical process of rolling out, which affects both the surface and texture. J. PRIDEAUX.

May 2.

IMPORTANCE OF GOOD WATER FOR STEAM BOILERS.

SIR,—I beg, through the medium of your widely circulated Journal, to call the attention of mine adventurers, engineers, &c., to the sad effects of the destructive quality of the water in general use for condensing and for feed water, for the boilers of the steam-engines in use in mines, more especially in copper, tin, and lead mines, and which is more or less pernicious where good surface water cannot be obtained, but where the whole must be pumped from the mine, bringing with it every deleterious quality that may be held in solution. The ill effects of this water is, in my opinion, far more than has ever been calculated. They may be briefly noticed as follows:—1. A rapid decomposition of all iron with which it comes in contact; but more particularly that of boiling and condensing work, where there is a constant agitation of the water; and, in fact, some water is so bad, that brass will stand it only a short time. There is now a mine in this county where they use silver gauge cocks for the boilers of the steam-engines. New boilers will remain good only a short time before they require repairs. Iron air-pumps are in a short time destroyed, and obliged to be substituted by brass, with brass bucket, rod, &c., and, of course, at a very great expense. If the expense of having new boilers and new condensing work was all, it would not be of very great importance; but the continued loss to the mines is the frequent temporary suspension of the steam-engine, and, at the same time, of the most important part of the underground operations, caused by frequent stoppages to repair boilers, condensing work, &c.—in fact, it is sometimes the case for the bottom workings of the mine to be suspended many weeks during the wet season, caused entirely by the defective state of the boilers; such things, together with the consequent extra consumption of fuel, have been ruinous to many mines.

Now, it appears to me that nearly all this may be prevented, not only in engines about to be erected, but also for an inconsiderable expense in those which are at work, and which I would do in the following manner—viz.: instead of using the present air-pumps and condenser, I would have a condenser on the principle of Hall's, which is a number of small pipes. These pipes, which should be made of iron, or copper, as circumstances might require, I would fix in a cistern of about the size now in use for condensing cisterns, and with a constant stream of cold water running into it, as at present. The pipes should be sufficient in number and size, to make a complete condensation of the steam at every stroke of the engine, and thereby giving the necessary vacuum. The water from the condensed steam should be pumped back into the boiler, and with such quantity as may be found necessary to make good the waste if any, and there should also be a small pump, to draw off any air that might find its way through the engine into the condenser.

The average speed of our pumping-engines in Cornwall is about five strokes per minute, of course giving, between strokes, ample time for complete condensation, and as they are all single-power engines, the exhaustion valve may be opened immediately on the up or outdoors stroke of the engine, thereby carrying out an immediate exhaustion, and forming a perfect vacuum during the pause between strokes. The capacity of the condenser should be enlarged in proportion to the speed of engine; therefore, in all double-power rotary-engines a much more capacious condenser would be required, but there can be no objection to this. The good effects of this mode of condensing would be, the boiling would remain good for a number of years. The air-pump with its load, friction, and packing would be entirely dispensed with, and, above all, the mine would be worked with the greatest regularity and consequent economy.

Redruth, May 2. JAMES SIMS.

THE PATENT LAWS.

SIR,—There cannot be a stronger instance of the necessity for alteration in, or reformation of, the laws and usages of patent monopolies, than the intimation set forth in a paragraph at page 202 of your last Number, designated "Coal Tar." If abuses of public privilege and of the principles of free trade *must* exist, any advantages connected with them ought to be patent to the inventor; while the obtaining and securing a patent privilege ought to be so simple and clear, with all information readily accessible, as to admit of any one so desirous of being his own agent, especially in matters where privacy is necessary, and where too often an inventor's confidence has led to the ruin of his hopes and expectations. Why is it that a public institution is not in existence, where all public records may be free to perusal and transcript as in the reading rooms at the British Museum? A rich M.P. can obtain all the records of his occupation in

print at one halfpenny per sheet; while the poor inventor is charged 30 times as much, and presented with a roll so illegibly written that he cannot read it, and is not allowed to transcribe a single line. Had a more just and liberal system been in practice, Mr. R. A. Smith, of Manchester, might, in the facility of obtaining all patented matter touching the points bearing on his inventions, have avoided the chagrin and loss attendant upon his present infringement of the eleventh claim of a patent granted to me in 1845, which runs thus—"I claim the method of varnishing, filling, or otherwise grouting the pores of cast-iron, earthenware, and other descriptions of pipes and vessels, destined to convey gas, air, water, or other fluids, or to sustain partial vacuum in order to prevent exosmosis and endosmosis." The specific nature of the preparation being as follows, in detached quotations:—"The condensing main is made of cast-iron, must have its internal surface covered over, and its exosmosic pores grouted with bitumen or asphalte, resulting from the distillation of naphtha from coal tar, or any other similar resinous or bituminous substance, blended or otherwise with a suitable proportion of steanic or margaric acids, or both, according to circumstances." The drones of the patent-office would merely chuckle at these discrepancies, as forming a portion of their paralysing privileges, and with the hope that the results would still bring more grist to their mill. To obviate these expectations, I invite Mr. Smith to communicate with me, when I doubt not we shall be able amicably to arrange matters, without furnishing fresh food for the harpies of these remnants of barbarous times, who desire nothing more than altercation between patentees, and a consequent application through their agents, the lawyers.

Walworth, April 30. W. RADLEY, Ch. E.

ON PYROGEN.

SIR,—Although not entirely agreeing with Mr. Lake, in his theory of pyrogen, I am able to state a fact which appears to illustrate the idea that the pyrogen, or other element, in a galvanic circuit is liable to become exhausted, and that such exhaustion may cause a diminution, or ultimately a cessation, of the galvanic action. I had under my care a large set of apparatus, in wooden troughs, standing upon wooden supports, on a wooden floor, in a room kept constantly at a temperature of 75° or 80°; one set of troughs contained the battery plates, of zinc and copper, and the liquid, which was water acidulated with sulphuric acid; the other set contained plates of copper, with the articles to be deposited upon, in a solution of sulphate of copper. The liquid in the battery troughs was changed, from time to time, as it became saturated with sulphate of zinc, but there was not the same necessity for changing the solution of sulphate of copper in the depositing cells, that liquid being maintained in an equable state of saturation by the proper action of the circuit. But after constantly working this apparatus for about a fortnight, I began to find a great falling off both in the quantity and quality of the copper deposited. I at first naturally attributed this falling off to some defect in the strength of the batteries, but soon discovered that such was not the true cause, for by no change in the batteries, nor even by substituting new ones, could I obtain a deposit of copper similar to that which had been made at the commencement of my operations. I also tried the effect of adding small quantities of acid and of sulphate of copper to the copper solution, but with little or no beneficial result. It then occurred to me that, from its insulated position, the sulphate of copper solution might have become partially exhausted of some principle necessary to the proper action of the galvanic circuit. I made a fresh solution, and drawing off the old from one of the troughs, substituted a supply of that just made. The effect of this change was immediate and decisive. The deposit being, both in quantity and quality, equal to any I had ever obtained.

After this I had two cisterns made, each capable of containing a quantity of the solution equal to what I had in use. I kept a double quantity of the solution, which I used during alternate weeks—one portion being in use in the depositing troughs; the other remaining at rest, exposed to the air, in the cistern. By this method the exhausted powers of the solution appeared to be revived, and I was enabled to maintain an equable deposit. I may mention, that I tried the effect of a strong copper wire from the liquid in the trough to a stream of water, flowing outside the building; but was not satisfied that any good resulted therefrom.

In the experiments of Mr. Crosse and others, a galvanic action has been maintained for many months in a battery very carefully insulated; but in all such experiments the action is very slow—the liquid used being, in most cases, water without acid. The quantity of liquid is also generally large in proportion to the size of the plates; we may, therefore, fairly conclude that the pyrogen, or other principle, is supplied by the atmosphere as fast as it is exhausted. It may be doubted whether the exhausted power of the liquid be not a mere phenomenon of polorisation, and not a consequence of the abstraction of pyrogen or other matter. We want a better accumulation of *facts* before we can safely theorise on this and many other points. Frequent, or even constant, gentle agitation of the solution improves the deposit; and I have found the exhausted power revived by merely drawing it off, and then pouring it back into the trough, though not to anything like the same extent as by a week's rest and exposure to the atmosphere.—N.: *Pimlico, May* 1.

WONDERS IN LOCOMOTION—NEW MOTIVE-POWER.

SIR,—A little bit of fair argument is often not only diverting but instructing, and I must confess that the interchanges of ideas which have taken place, through the medium of your valuable Journal, relative to my "NEW MOTIVE-POWER," have afforded me no small share of gratification; for even Mr. Hanssen's misapprehensions have only served to elicit explanations, and led to a very talented little lecture from Mr. W. Radley, of Walworth, on the chemical properties of pyroxyline, which appeared on the same day, and in the same page of your able Journal, in which my further definitions on the same subject made their appearance.

This public correspondence has placed me also under a most pleasing obligation to Mr. John De la Haye, of Liverpool, and to Mr. John Curr, of Upper Penton-street, who, though total strangers to me, had the nobleness to stand up in defence of truth, and to express, in an encouraging manner, their hope for my success. But as there is no pleasure without its alloy of pain, it is now my unpleasant duty to correct here the misrepresentations, published in the *Mining Journal* of the 28th ult., by Mr. John Horsley, practical chemist, of Ryde, in reference to the cause of oxidation of fire-arms.

No man doubts Mr. Horsley's assertion, that if "IN THE COURSE OF TIME" (which Mr. Horsley has very cleverly left undefined), either from effects of gases arising from fired pyroxyline, or from gases emanating from fired gunpowder, or from steam, or from the effect of the ordinary moisture in the atmosphere, any gun-barrel be allowed to be corroded, and eaten away by rust, such gun-barrel "*will become absolutely dangerous to use.*" But I must be allowed to express my doubt, whether or not "*parties at the Ordnance Department have discarded the use of gun cotton in the army, on account of the nitrogen of its gases;*" for if Mr. J. Horsley institutes one or two simple experiments with gunpowder (as he has kindly advised me to do with gun-cotton), he will find that the gases of gunpowder contains a vast deal more of nitrogen than those of pyroxyline; while in India, where the interest of wealthy English gunpowder manufacturers is not so active as in this country, and throughout the continent, where Governments are *their own manufacturers of explosives* (taking the word in its political as well as its chemico-technical sense), the armies have found gun-cotton highly preferable over gunpowder—not only on account of its greater efficacy, but also on account of cleanliness. I must also take leave to add, that if Mr. Horsley has at any time found in the gases of the pyroxyline of his own making not only *nitrogen*, but, as he says, such quantities of absolute *nitrous acid gas* as to discharge the colour of litmus paper, then the fault must lie with his own mode of preparing that explosive substance.

In conclusion, I beg to say that I once did myself the honour of calling on Dr. Ure, but that the doctor's opinion relative to the applicability of pyroxyline as a motive-power was never sought by me.

London, May 1. ADOLPH COUNT DE WERDINSKY.

ERRATA in my letter, published in the *Mining Journal* of the 28th inst. In reference to the weight of the traveller to Manchester, instead of "168 lbs.," read "186 lbs.;" and as to the cost of pyroxyline, instead of "something less than three-halfpence per mile," read "something less than *three-farthings per mile.*"—ADOLPH COUNT DE WERDINSKY.

THE PYROXYLINE ENGINE.

SIR,—Already have several of your correspondents exposed the fallacies in the details of the marvellous discovery of Count de Werdinsky, as to his new motive-power; and instead of anything new, and absolutely startling, as we were led to expect by his extraordinary announcement, it is nothing more than the common explosive engine, which has been tried over and over again with every description of combustible liquid and gas without any successful results. That is, however, no reason why another should not succeed; but my object in now addressing you is to show that the count is absolutely ignorant of the nature of charcoal and the component parts of gunpowder, and, consequently, little fit to prosecute successfully an invention depending on delicate chemical machinery, such as is required in the construction of an explosive engine for motive-power. His ignorant assertion, that the resulting gases of gun-cotton were but carbonic oxide and carbonic acid, have been pretty fairly exposed in your last Number; but in the count's communication therein, he says, describing the instructions given him by his tutor at a very early age—"The nitre yields by heat a considerable quantity of oxygen gas; the charcoal yields by heat a considerable quantity of hydrogen gas," &c. Now, Sir, who beside the count, or "his tutor," ever heard of charcoal (nearly pure carbon) yielding "a considerable quantity of hydrogen gas;" or, in fact, of gunpowder, or any of the ingredients of which it is composed, containing any hydrogen? If they did, the count is again in error by saying, that "the residuary gases, after the explosion of gunpowder, are chiefly nitrogen and carbonic acid;" for in that case there would be a large portion of vapour of water. In this statement of residuary gases, he happens to be correct, but evidently by chance, as his statement of charcoal giving out hydrogen, would produce a different arrangement of residuary gases.

St. John's-square, May 1. AZOTUS.

WONDERS IN LOCOMOTION—NEW MOTIVE-POWER.

SIR,—You have published in your Journal of the 14th April, under the title of "Wonders in Locomotion," a letter from Count Werdinsky, containing a sketch of an ingenious method proposed, for the purpose of procuring a regular and manageable motive-power by the gases produced by the decomposition of xyloidine. I have no intention of emitting an opinion relative to the merit of this invention; yet I much fear that many practical difficulties will have to be encountered. Notwithstanding the count's opinion to the contrary, I believe it will be found that a very strong corrosive action will take place. The gases produced by the detonation of xyloidine contain 16 per cent. of *binoxide of nitrogen*—a gas which alone exercises an action on metallic surfaces, but which rapidly absorbs oxygen from the atmosphere producing *nitrous acid*, which is a powerfully corrosive substance. Whenever xyloidine has been used in fire-arms this action has invariably been observed, the interior of the cannon, or gun-barrel, being deeply corroded in a very little time. The following analyses of xyloidine, and the gaseous products of its decomposition, may prove interesting in relation to this subject; the analyses are by Messrs. Schmidt and Hecker, and were published in *Erdman's Journal*:—

COMPOSITION OF XYLOIDINE.—Carbon, 25·79; hydrogen, 2·87; Nitrogen, 12·54: oxygen, 58·80=100·00.

One gramme of xyloidine yields 588 cubic centimeters of gas, composed as follows:—

	By weight.	By volume.
Carbonic acid	19·72	17·03
Carbonic oxide	35·13	47·45
Binoxide of nitrogen	16·14	20·41
Nitrogen	5·02	6·75
Carburetted hydrogen	6·25	8·36
Water	17·74=100·00	—=100·00

Ougrée, Liege, April 25. E. M. L.

TERRESTRIAL MAGNETISM;

AND ITS EFFECTS ON THE SEMI-FLUID SURFACE OF THE EARTH.

[*Continued from last week's Mining Journal.*]

In order to give a more general idea, and to comprehend the relations of superposition of the sedimentary rocks, as actually observed in each zone from south to north, and to show that although the order is never inverted, some beds are often wanting, and seldom seen in their complete numerical order, we shall again enumerate the series according to Mr. Hopkins's system, and, for the sake of perspicuity and conciseness, follow his method of figures to indicate the equivalent beds, apart from their relative ages, in the respective zones, by which means the local suppression, or accumulation, of some of the series will be easily observed:—

	Deposits.	Fossil contents.	Geological names.
No. 5	North temperate	European shells	Tertiary and Alluvial.
4	Ditto tropic	Echinus, pecten, &c.	Chalk and clay.
3	South tropic	Ammonites, belemnites, &c.	Oolite.
2	Ditto temperate	Terebratulæ, productæ, &c.	The Carboniferous formation.
1	Ditto frigid	Trilobite, orthoceratite, &c.	Cambrian and Silurian.
0	Representing the primary crystalline rocks.		

Commencing our examination in the south, in Patagonia, New Zealand, and Australia, and referring to all the observations made to date, we are informed that there are in these regions only irregular and partially consolidated beds of No. 1 covering the primary, and none of the ordinary sedimentary series; and some of the fossils obtained from the recent formations of Tierra del Fuego and Falkland Islands can hardly be distinguished from species found in the ancient silurian rocks of England.

The formations of the south frigid consist of	Sedimentary						1			1									
	Primary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
The south temperate formation	Sedimentary						2												
		1	2	1						2	1								
	Primary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
The south tropic formations, according to a section made by the author, embracing the three Cordilleras	Sedimentary				3	3				3						2			
		1	2	1	2	1	3			1	3					1			
	Primary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
The north tropic geological section	Sedimentary	3	4											4					
		2	3	4	3			2	4	4	2	3							
		1	1	2	1	4	3	1	2	3	1	1							
	Primary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Consequently, it follows that, although No. 4 (chalk) covers No. 3 (oolite), the latter is not always formed, either of the series may be deposited immediately on the primary base; and it is necessary to obtain other indications than No. 3 to ascertain the existence of No. 2 under it. We know that No. 3 cannot be under No. 2, nor any other in the inverted order. A deposit may be in the same zone—that is, exactly equivalent in age to another, and yet differ both in lithological and zoological character, and thus cannot be determined without the aid of the inferior and superior beds. The author then alludes to instances where mining labourers (misnamed practical miners) have been employed in sinking through a black slaty No. 1 in search of No. 2 (coal), and where the fossil geologists would have been equally in the dark, and unable to give a definite statement to the capitalist, showing that such a formation could not contain beds of economical coal. When the upper series of the sedimentary beds are much developed, the lower are seldom found underneath, and *vice versâ*; therefore those who have studied geology from compilers of theoretical geology, and sections, must modify their ideas on this point.

The more recent deposits must necessarily be less contorted and fractured as a whole than those which are more ancient, on account of their being subject to less disturbances, and not so compact; therefore the fractures and dislocations visible on the surface of any series of rocks would not afford a just estimate of the amount of disturbances to which that particular part of the earth's surface has been subjected below. Such undulations and disturbances, when viewed, as they should be, in proportion to the spheroid, are not equal to the roughness on the rind of an orange or a melon, and, consequently, may be conceived to have been effected by comparatively small intensities of chemical actions. A want of due attention to this important point is the cause of such disturbances being considered as the result of tremendous imaginary forces, such as igneous fusion bursting the external crust, &c. Stupendous igneous forces are often brought forward by some geologists to account for disturbances which could be effected by an ordinary hydrostatic press connected with a confined subterranean sheet of water.

Movements, fractures, and dislocations, of such order, regularity, and extent as we find in the whole masses of rocks, both crystalline and sedimentary, constituting the surface of the globe, require a corresponding, slow, regular, and powerful acting cause, such as that we find in the operations of terrestrial magnetism. In coal works we often see the lower stony bed swelling upwards, and the upper bed bulging downwards, until they meet and fill up the cavity, without producing a single crack; here, then, as well as numerous other cases which could be mentioned, we have contortions of solid rocks by a slow action, without heat, or any of the awful fiery actions, which the theoretical geologists are so fond of contemplating. When we duly reflect that rocks have been exposed to variable pressure from the time they were in a state of mud and sand to their compressed consolidated state, we can easily conceive why they should present such contortions. Again, rocks have been viewed too much in the sense of dry, hard, and inert masses, like the granite of the London-bridge, instead of active and moist: there is the same difference in rocks and loose blocks as there is in growing trees and seasoned wood; an absolute dry compact rock *in situ* would be a phenomenon in nature—*i.e.*, an extraordinary exception to the usual natural production. Rocks are composed of numerous moist and pliable sheets, capable of extension and compression, and easily twisted and bent under pressure. Mr. Hopkins's work serves as a key to the descriptive part of all geological works, and enables the student to grasp the fundamental principles of the science at once in all its branches,* without being fatigued with those unnecessary appendages already complained of.

[*To be continued in next week's Mining Journal.*]

* "On the Connection of Geology with Terrestrial Magnetism: showing the General Polarity of Matter, the Meridional Structure of the Crystalline Rocks, their Transitions, Movements, and Dislocations," &c.—of which there are but a few copies left.

ON A BOILER CRUST COMPOSED OF SULPHATE OF LIME.

BY WILLIAM WEST, F.R.S., LEEDS.

[Read before the West Riding Geological and Polytechnic Society.]

It has been common to speak of bicarbonate of lime, or carbonate of lime dissolved in water by excess of carbonic acid, according to the opinions on a theoretical point of authors describing the same substance, as yielding the crust, or "fur," of steam boilers; and either to deny or overlook the share which *sulphate* of lime has in the formation of this troublesome deposit. Among those who have gone so far as to deny the existence, or, at least, the practical importance, of sulphate of lime in these crusts, is Dr. Ritterbandt, the proprietor of a very ingenious and, I believe, in some situations, a very effectual patent method for preventing incrustations of the carbonate, by introducing chloride of ammonium into the boiler. At that temperature carbonate of ammonia is driven off, and the highly soluble chloride of calcium remains, in place of insoluble carbonate of lime. I have, however, so often found in these crusts not merely a notable, but a considerable, portion of sulphate of lime, that I have on different occasions, when my subject required, called attention to its presence, and expressed an opinion, which I have found much to confirm, that it is even more troublesome and mischievous than the carbonate alone. The specimen now treated of was formed, under somewhat peculiar circumstances, in a low-pressure boiler. It contains not a trace of carbonate, yields not a bubble of effervescence with acids, and a portion dissolved in a large quantity of water yields, with chloride of barium, a quantity of sulphate of barytes, closely equivalent to what it would furnish if pure anhydrous sulphate of lime. It contains a little oxide of iron. It is not the curious salt discovered by Professor Johnston, containing half an atom of water to each atom of sulphate of lime; for ten grains, finely powdered, lost by exposure to a red heat only three tenths of a grain—less than a quarter of an atom of water, and, therefore, hygrometric or accidental; and the sulphate is essentially anhydrous.

The deposition of sulphate of lime from a solution, far below saturation, takes place in the manner which I described some years ago, in the Journal of the Royal Institution. As each bubble of steam is disengaged during brisk ebullition, the sulphate of lime, of course, separates; for its re-solution time would be required, but before that can take place many other particles are separated, and these rapidly cohere into portions large enough to subside and to resist yet more the solvent power of the water. I have elsewhere, and on other occasions, stated my belief that though gypsum, in its hydrous and ordinary crystals, is a softer mineral than calc spar, yet that boiler crusts containing much sulphate of lime are harder than those composed wholly or chiefly of carbonate.

The present specimen curiously confirms this opinion. I am assured by the workmen that not only was it with difficulty removed by the tools usually employed for such purposes, but that even the "sate," or hard chisel, used for cutting cold iron, is sometimes broken or turned by this crust.

IMPROVEMENTS IN TREATING OXIDES OF IRON.

[Specification of patent granted to Mr. Wm. Longmaid, of Beaumont-square, in the county of Middlesex, for improvements in treating the oxides of iron, and in obtaining products therefrom.]—*Newton's London Journal.*

This invention consists in certain modes of treating the oxides of iron, for the purpose of obtaining a black or dark coloured pigment, or a volatile oleaginous product, and an inflammable gas. The oxide of iron is finely pulverized and then mixed intimately with some carbonaceous matters. The proportions vary considerably:—the addition of 10 per cent. of carbonaceous matters would generally be sufficient; but the patentee prefers to use a little excess of carbonaceous matters; and, therefore, he mixes the oxide of iron with from 12 to 15 per cent. of carbonaceous matters, or such a quantity that, when the process is complete, a slight excess of carbonaceous matter will remain in the retort unemployed. Any kind of carbonaceous matters, which are not too volatile or expensive, and which can be mixed intimately with the oxide of iron, may be used; but when not in a fluid state, they must be pulverized. Those preferred by the patentee are resin and tar. When resin is used, it must be pulverized, and the oxide of iron mixed therewith in a dry state. When tar is employed, the oxide of iron is mixed therewith in a moist state, for the purpose of facilitating the incorporation of the materials; and the mixture is dried at a temperature sufficiently high to deprive it of nearly the whole of its moisture, and reduce it to a state of powder.

The mixture is to be put into retorts or close vessels; and the patentee prefers to use cast-iron retorts, of the ordinary kind, five feet in length, and one foot in diameter, with a cover, to be fastened on the open end, and a ring at the opposite end, for the purpose of lifting it. A retort of this size may be charged with 1½ cwt. of the mixture; and then (the cover being secured) it is lifted by a crane, and placed in a suitable furnace, in a vertical position, with the cover end downwards, in order that the volatile products evolved from the mixture may be consumed, and thus aid in heating the retort. The heat is to be gradually raised until the whole of the retort has arrived at a low red heat; at which temperature it must be kept until about two hours after the evolution of the combustible volatile products has ceased; and then, the process being complete, the retort is removed from the furnace, and allowed to become cold, or nearly so, before the charge is withdrawn—as it would be injured by contact with the air whilst hot. The material produced will be black, or dark coloured, and will form a good pigment for many purposes. Some carbonaceous matters, when used in the production of this material, will cause it to be sufficiently pulverulent; but, when this is not the case, it must be ground or pulverized: the pulverized matter is to be ground with oil, so as to form paint, in the usual way. When the patenteee does not intend to burn the combustible volatile products of the calcination, he lutes the cover on the retort, so as to make it air-tight, and inserts a pipe therein to convey the volatile products to a condenser. The calcination will cause a volatile oil to be evolved from the contents of the retort, and the oil will pass through the pipe into the condenser, where it will be condensed. The calcination will also cause the evolution of an inflammable gas, snitable for the purpose of illumination; which gas must be conveyed by a pipe from the condenser to a gasometer.

The patentee claims the mode or modes of treating oxides of iron by mixing them with carbonaceous matters and subjecting them to the action of heat in the manner above described, for the purpose of obtaining one or more of the several products before mentioned.

BOILER INCRUSTATIONS.—Most of our readers are aware of the evils attendant on the deposit of carbonate and sulphate of lime, and other earthy salts, from the water in steam-boilers, and, if not much acquainted with machinery, will, doubtless, have noticed its effects on the tea kettle or kitchen boiler. We are not aware that any plan has been hitherto successfully adopted for freeing the water from these impurities, at the same time leaving it wholesome and fit for the table, and all culinary purposes. Dr. Ritterbandt's process by muriate of ammonia can, of course, only be employed where the water is used solely as a motive-power. Mr. Horsley, a chemist of Ryde, Isle of Wight, has taken out a patent for purifying, filtering, and otherwise rendering water soft and wholesome, and better suited to culinary and manufacturing purposes. In a prospectus issued by the patentee, he very truly states, that the best filters ever constructed, can only render turbid water clear, or remove those impurities which are mechanically suspended in it, but cannot remove those which are chemically held in solution: he states that the process consists of chemical, combined with mechanical means, and is applicable to every description of steam-engine, culinary, or manufacturing boilers. We are not informed what the process is in detail; but are assured in the prospectus that no corrosion of the metal can take place, either from acid liquids or from noxious vapours; and, from the water being steadily and equally heated, there will be none of those bursts of steam, so injurious to machinery; moreover, the water being freed from all calcareous matter, explosions will by its use be greatly decreased, or probably altogether prevented. The cost is stated to be very trifling, and, if as successful as represented, it will, doubtless, prove a most profitable invention.

METHOD OF CLEANING VESSELS AND OTHER ARTICLES OF SILVER.—Boil 30 grammes of finely pulverized and calcined hartshorn in a quart of water, and while on the fire put as many silver articles in the vessel used for boiling as it will hold, and leave them there for a short time; then withdraw them, and dry them over the fire. Continue this until all the articles have been treated in the same manner. Then introduce into the hartshorn water clean woollen rags, and allow them to remain until saturated; after which, dry them and use them for polishing the silver. This is also the best substance which can be employed for cleaning locks and brass handles of room doors. When the silver articles are perfectly dry, they must be carefully rubbed with a soft leather. This mode of cleaning is excellent, and much preferable to the employment of any powder containing mercury, as mercury has the effect of rendering the silver so brittle as to break on falling.—*Technologiste.*

HOLLOWAY'S PILLS AN EXCELLENT REMEDY FOR COUGHS, COLDS, PULMONARY COMPLAINTS, AND OTHER DISEASES OF THE CHEST.—Mr. J. C. Rheinhardt, chemist, of Hull, states that Mr. Stinger, formerly of the Hull Glass Works, was pronounced to be far gone in consumption, and medical men had given him up as incurable. On seeing Holloway's pills advertised he thought he would give them a trial, and, after taking a few boxes, his cough abated, his flesh became firm, his appetite improved, and now his health is completely restored. This admirable medicine is a certain remedy for the most obstinate cases of asthma, old coughs, recent colds, and all diseases of the chest and lungs.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

PORTER'S PATENT CORRUGATED IRON BEAMS, GIRDERS, and FIRE-PROOF FLOORS.—These BEAMS and GIRDERS are about 30 per cent. lighter, and 20 per cent. cheaper, than any others of wrought-iron.—The FIRE-PROOF FLOORS, although not more costly than those of cast-iron, with brick arches and concrete, give greater security from fire, with less than one-tenth of the weight.—MANUFACTORY—IRON BUILDING & ROOFING WORKS, SOUTHWARK. *OFFICE—2, ADELAIDE-PLACE, LONDON-BRIDGE, CITY.*

TO ENGINEERS AND BOILER MAKERS.—The BIRMINGHAM PATENT IRON TUBE COMPANY MANUFACTURE PATENT LAP-WELDED IRON TUBES (under Mr. R. Prosser's Patent) for Marine, Locomotive, and all Tubular Boilers. Also, TUBES for Gas, Steam and other purposes. All sorts of IRON GAS FITTINGS.
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The adoption of its use effects a saving of 25 per cent. on the quantity required for lubrication over any other oil; and its properties are such as to greatly preserve the bearings of machinery in general. A trial will prove the fact.
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IMPORTANT TO MINE OWNERS, &c.
GUTTA PERCHA COMPANY—PATENTEES, CITY-ROAD, LONDON.
The GUTTA PERCHA COMPANY beg to bring under the notice of Mine Owners, Manufacturers, &c., the GREAT SAVING, both of time and expense, which is effected by the use of the GUTTA PERCHA PUMP BUCKETS and VALVES. These Buckets may be had of any size or thickness, *without any seam or raised joint.* They are unaffected by acids, alkalies, &c. Cold water will never soften them, and they are, consequently, much more durable than leather, and also cheaper. The most gratifying testimonials have been received from millowners, who have had these Buckets in operation for several months past, without the slightest repairs being required.
GUTTA PERCHA TUBING
Being so remarkable a CONDUCTOR of SOUND, is now being extensively applied for CONVEYING MESSAGES from ONE BUILDING, or PLACE, to ANOTHER. If a Tubing of this material, 1 inch diameter, be carried from the mouth of a mine, or pit, down the shaft, to various parts of the mine (no matter whether a quarter or half a mile distant), an instant communication may be established by means of the whistle, on Whishaw's principle, and a conversation carried on as distinctly as though the parties were but a few feet from each other. When these Tubes are in general use, they will greatly lessen the *loss of life in mines.*
GUTTA PERCHA DRIVING BANDS
Continue to secure a continually increasing demand; they can be had of any size or length. Their durability and strength, permanent contractility and uniformity of substance, their non-susceptibility of injury from contact with oils, grease, acids, alkalies, or water, and the facility with which the only joint required can be made in bands of from 200 to 300 feet long, render them superior for almost all working purposes, and decidedly economical.
GUTTA PERCHA Soles for Boots and Shoes, Bowls, Buckets, Picture Frames, Brackets, Mouldings, Surgical Instruments, Vases, Cups, Inkstands, Balls, &c., may be had at the Company's Works, Wharf-road, City-road, London, or of any of their wholesale dealers in town or country.

DAMP AND GASEOUS EXHALATIONS. SANATARY MEASURES.
All MEMBERS of BOARDS of HEALTH are especially DIRECTED to the most EFFECTIVE MEANS which they can ADOPT to PREVENT the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in grave-yards), stagnant water, and collections of fœtid refuse, tending to produce a miasmatic state of atmosphere. In situations so effected, the impervious quality of the ASPHALTE of SEYSSEL renders it the most perfect PAVEMENT or COVERING that can be rolled upon for hermetically closing, and thereby preventing the rising of moisture and escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the Commissioners on the Fine Arts:—
"In 1839, I superintended the construction of a house of three stories on the Lac d'Enghein. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of SEYSSEL ASPHALTE,* less than half an inch thick, over which coarse sand was spread.
Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ in. above the external surface of the soil, and only 19½ in., at the utmost, above that of the sheet of water.
The layer of Asphalte having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."
* This method has been adopted at the new Houses of Parliament.
Seyssel Asphalte Company, Stangate, London. I. FARRELL, Secretary.

NEUBER'S SCENTED LIQUID GLUE, being perfectly transparent, is admirably ADAPTED for LADIES' FANCY WORK, &c.
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NEUBER'S WASHABLE WATER VARNISH, for PAPER HANGING, &c., is without smell, and requires no preparation of size.—Best full bodied, 12s. per gallon; flat, 8s.; and in bottles at 1s. and 1s. 6d.
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NEUBER'S TRANSPARENT FRENCH POLISH, 25s. p. gal., and in bottles 1s. each.
Naptha Polish, 14s. per gallon; Best Dark Oak Varnish, 10s.; Pale, 12s. per gallon.
Best French ditto, 21s. per ditto; Best Dark Carriage ditto, 13s.; Pale, 14s. per ditto.
Wholesale at the Patentee's, NEUBER,
Varnish and Japan Manufacturer, 549, New Oxford-street, London.
Samples forwarded on receipt of 18 postage stamps.
Wholesale Agents—Low and Son, perfumers, 330, Strand; Hopwood and Parke, Fish-street-hill, London; P. Walker and Co., Jamaica-street, Glasgow, and 1, Duke-street, Leith; Robinson, Palmer, and Palmer, operative chemists, Colmore-row, Birmingham; W. Sims, Bath; F. Myers, Preston.
N.B.—Respectable local agents are required for the provinces.

FOR EVERY HOUSE IN THE KINGDOM.
HARPER TWELVETREES' GENUINE CONCENTRATED WASHING PREPARATION, for accomplishing a week's wash in 1½ hour, and is warranted not to injure the finest fabric.—Sold by all chemists and oilmen, in bottles, at 6d., 1s., and 1s. 6d. The 1s. 6d. bottles contain sufficient for 48 gallons of water, which will boil three lots of clothes, being equal to 144 gallons.
All the leading journals in the kingdom have spoken favourably of this invaluable process, now adopted in most of the infirmaries, asylums, public institutions, and families throughout the kingdom.
MANUFACTURED only by TWELVETREES, BROTHERS, Ink and Blacking Manufacturers, Millman-street, Bedford-row, London, wholesale and for exportation.
Two thousand more agents wanted.
Sold wholesale by Barclay and Sons, Sutton, Edwards, Hansey, &c.
No Chemical or Potash preparations are introduced, which are notoriously injurious to linen.—MANUFACTORY—MILLMAN-STREET, BEDFORD-ROW, LONDON.

THE SCIENCE OF WASHING.—"It is but common justice to state, that we have seen the mode invented by Mr. Twelvetrees, of Millman-street, Foundling Hospital (noticed in our paper a short time back), described by very many of our country contemporaries, from experience, as bearing out all Mr. Twelvetrees professes. The experiment is so cheap and ready, that it is worth any good housewife's while to adopt it."—*Douglas Jerrold Newspaper, March 24.*
THE SCIENCE OF WASHING, by HARPER TWELVETREES, bookseller, price 2s. 6d., to be had of Kent and Richards, London, and all booksellers.

Just published, price 2s., or by post for 2s. 6d.,
THE SCIENCE OF LIFE: or How to Live and What to Live For; with ample Rules for Diet, Regimen, and Self-Management—together with Instructions for securing perfect Health, Longevity, and that sterling state of happiness only attainable through the judicious observance of a well-regulated course of life.
By A PHYSICIAN.
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COAL MARKET, LONDON.
PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bute's West Hartley 14—Buddle's West Hartley 14 3—Carr's Hartley 14 6—East Adair's Main 13—Holywell Main 14 3—New Tanfield 13—Newcastle Hartley 13—Ord's Redheugh 13—Tanfield Moor 14 3—Townley 14—Wall's End Acorn Close 16 6—Bewicke and Co. 15 9—Framwellgate 16 6—Gosforth 15 9—Gibson 15 3—Hotspur 15—Killingworth 15 6—Riddell's 15 3—Wharncliffe 16—Eden Main 17—Lambton Primrose 17—Belmont 17—Braddyll's Hetton 18—Bell 16—Hetton 18 6—Haswell 18 9—Lambton 18 3—Pemberton 15 9—Russell's Hetton 18 3—Stewart's 18 6—Shotton 17—Whitwell 16—Caradoc 17 6—Cassop 17 6—Heugh Hall 16 6—Kelloe 17 6—South Hartlepool 17—Thornley 17—West Belmont 17—Whitworth 14 6—Adelaide Tees 17 6 to 18—Denison 16—South Durham 16 3—Tees 18 6—Wooddefield 13 6—West Hetton 16 6—Cowpen Hartley 14 9—Hartley 14—Llangennech 22 6—Sidney's Harley 14 9—Ships, 139; sold, 100.

WEDNESDAY.—Buddle's West Hartley 14—Carr's Hartley 14—East Adair's Main 13 6—Hasting's Hartley 14—Holywell Main 14—New Tanfield 13 6—Newcastle Hartley 13 6—Original Tanfield 12—Ord's Redheugh 13—Stewart's Hartley 13—Tanfield Moor 14—Walker's Primrose 11 9—West Hartley 14—Wylam 13 9—Wall's End Acorn Close 15 6—Eden 14 6—Framwellgate 15 6—Heaton 15—Hedley 15 6—Killingworth 14 6—Percy Benshaw 14 6—South Peareth 13—Walker 14 6—Washington 13 9—Eden Main 15 to 15 3—Lambton Primrose 15 9—Braddyll's Hetton 17—Bell 15—Hetton 17 6—Haswell 18—Hutton 15 6—Jonassohns 14 6—Lambton 17—Morrison 14 6—Russel's Hetton 17—Stewart's 17 to 17 9—West Belmont 15 9—Whitwell 15—Hartlepool 17 to 17 3—Hudson's Hartlepool 15—Heugh Hall 15—Kelloe 16 6—South Hartlepool 15 6—Thornley 15 6—Whitworth 12 6—Bishop's Tees 15 6—Denison 15—Seymour Tees 15—Tees 17 6—West Cornforth 15—West Hetton 14 9—Cowpen Hartley 14—Hartley 13 6—Howard's West Hartley Netherton 14—Sidney's Hartley 14.—Ships at market, 344; sold, 154.

FRIDAY.—East Adair's Main 12 6—Hasting's Hartley 13 6—New Tanfield 12 6—Newcastle Hartley 12 6—Ravensworth West Hartley 13—Tanfield Moor 13 9—Tanfield Moor Butes 12 6—Townley 13 6—Wall's End Bewicke and Co. 14 6—Gibson 14—Hilda 13 9—Killingworth 14 3—Riddell's 14—South Killingworth 12 6—Edin Main 15—Belmont 15 6—Hetton 17 6—Haswell 17 9—Jonassohns 14 6—Keepier 15 6—Stewart's 17—Hudson's Hartlepool 14 9—South Hartlepool 15—Thornley 15—Whitworth 12 6—Adelaide Tees 16 to 16 6—Bishop's Tees 15—Seymour Tees 15—Derwentwater Hartley 14—Hartley 13 3—Sidney's Hartley 14.—Ships at market, 232; sold, 60.

[PRELIMINARY ANNOUNCEMENT.]
ADELAIDE MINING ASSOCIATION, SOUTH AUSTRALIA.
"It needs no prophetic spirit to foretell that, in a very few years, the mining interest of South Australia will be a formidable rival to all other competitors, whether European or foreign. There is no such promising or legitimate field for the employment of British capital as South Australia holds forth: every circumstance which can conduce to the successful development of mining speculations is essentially in favour of this colony; and none of the causes which made most of the South American and other foreign mining concerns, since 1825, unprofitable to a proverb, can be anticipated to cloud the sun of prosperity which has just risen over our favoured province."—*Dutton's South Australia and its Mines*, page 257.
A company, under the above title, is in course of formation, the object of which is the working of some of the numerous copper and other metallic mineral deposits of South Australia. These deposits have been found, in many instances, close to the surface, and almost in every direction throughout the colony, in lodes of extraordinary magnitude and richness; the ores consisting mostly of carbonates and oxides, remarkable for their purity and high produce, and for their great fusibility. The finer ores will be selected for shipment to England, the inferior qualities may be smelted on the spot.
The mineral capabilities and resources of South Australia have become a great fact; and considering how recent has been the discovery there of copper ore, it may safely be affirmed, that the following returns exhibit a progress of mining development which has not a parallel.

1840.	1845.	1846.	1847.
£4099	£17,179	£54,168	£171,883

and it is expected that the returns of 1848 will be still larger. The average price of South Australian copper ore at Swansea is £23 16s. per ton.
The bulk of these returns is the result of the successful working of the Burra Burra Mine—the only undertaking which can be said to have been yet brought into full operation; a few months quarrying in this mine sufficed to repay its fortunate proprietors the whole of their outlay, and the shares of the company, on which £5 only have been paid, yield quarterly dividends of £10 each; and sales were made last Sept. at the enormous price of £250 to £275 per share. The net amount of dividends in three years has been £123,000, the capital being only £12,300. The mine shows no indication of any falling off in respect of either the quality or quantity of its produce.
The Tungkillo, Kapunda, Port Lincoln, and other mines, are yielding ores equal in quality to those of the Burra Burra, and some of them bid fair to rival her in importance.
It is well known that numerous promising lodes have been discovered in various parts of the colony, on which little or no trial has been made, simply because they were not found at once to be Burra Burras, or Kapundas; others have been kept secret, or left unwrought, partly owing to the difficulty of obtaining miners on reasonable terms, and partly owing to the injurious influence of the late Royalty Tax, or the want of available capital wherewith to work them to advantage. The removal of these obstacles, combined with the decided improvement in the metal market, renders the present a most favourable opportunity for the object here proposed; and the projectors, who have long been in communication with residents in the colony, on the subject of mineral lands, are enabled, from their confidence in those parties, and from the secrecy preserved, to offer to secure possession, for the sole benefit of this company, of certain mineral lands, affording indications of great promise, which have been specially reserved by the discoverers for this object, avoiding all unnecessary outlay of the capital of the company in an useless extent of territory, as well as in high premiums to which purchases at second hand are exposed.
The proprietors propose to leave the final approval of such reserved discoveries, together with the selection of any other mineral lands, to responsible and well qualified parties, appointed for that purpose by the company; with this view, the projectors have secured the services of Mr. ——, of Truro, as superintendent in the colony, a gentleman of the highest respectability and connections, and from his long standing and extensive relations with the mines in Cornwall—from his being personally well known to a large portion of the emigrant mining population of South Australia, believed to be eminently qualified for this important office, and who will himself take a considerable number of shares in the undertaking, thereby affording a guarantee for the judicious application of the funds of the company. The superintendent will proceed shortly to Adelaide, furnished with specific instructions from the board of directors, as to his duties. The peculiar advantages offered by this company consist in the selection of mineral lands, under the most careful provisions with reference to their value, and to the eventual success of the undertaking, and in the acquiring the same by the most economic means, as nearly as possible at the minimum price of £1 per acre, as fixed by the Government.
The affairs of the company will be conducted in London by a board of five directors, whose qualification will be the holding of 100 shares; and in South Australia by a committee of management, consisting of the superintendent, and two other competent and respectable residents, whose qualification shall be the holding also of 100 shares; of this committee, the superintendent will be permanent chairman, and no resolution which shall not include his vote in the majority shall be valid. The directors will retain the power to cancel at any time the appointment of any member of the local committee.
The duties of the local committee will comprise the selection of mineral land, and the management of the finances, correspondence, and general business of the company.
It is proposed that 10,000 shares, of £10 each, be created; that on 9500 of these shares a deposit of 5s. per share shall be paid on complete registration of the company.
That in order to make the remuneration of the projectors, directors, and committee of management dependent on the success of the undertaking, the remaining 500 shares shall be appropriated to them free of all cost in respect of past and future calls, as a compensation for all their services (those of the superintendent excepted), until a dividend, or dividends, amounting to 5 per cent. shall be declared out of the profits of the company, those shares in the meantime not being transferable.
No call, beyond the 5s. referred to, will be made on the shareholders until required by the local committee, for the purpose of completing the purchases of mineral land, of which, as well as of any future call, three months notice will be given; and it is anticipated that, with economical and energetic management, a further call of £1 per share will be all that will be required for the efficient working of the concern, unless it should be determined to extend materially the field of operations.
A Deed of Settlement will provide for the protection of the shareholders, restricting their liability to the amount of their subscription; and to the provisions made for this and other purposes, the attention of the shareholders is particularly invited.
Power to be taken for smelting ores, if it should appear necessary or advantageous; likewise to rent mineral land, either on lease, royalty, or otherwise.
The strictest regard to economy, consistent with propriety, will regulate the proceedings of the directors.
Half-yearly meetings of the shareholders will be convened, for the purpose of reporting the proceedings of the directors, and the state and prospects of the undertaking.
Proposed solicitors of the company, Messrs. Jones, Blaxland, and Jones, Crosby-square.

EMERSON'S PATENT LIQUID CEMENT is ready for use, is simple in its application, and only ONE-EIGHTH the COST of OIL PAINT; for beauty it is pre-eminent over all other materials used on the fronts of houses—giving the exact appearance of FINE CUT STONE; can be used at once on fresh Roman cement or other plastering; is particularly calculated for country houses, villas, or gate entrances that have become soiled or dingy, which can be beautified in any weather, at a trifling cost. Sold in casks, of 1, 2, and 3 cwts., at 8s., 15s., and 21s. each.
PATENT MINERAL PAINT.
Invaluable as a COATING for SHIPS' SIDES and BOTTOMS, all kinds of WOOD or METAL WORK, roofing felts, leaky roofs, spouts and gutters, doors, sheds, railing, and all kinds of out-door work, and being perfectly waterproof, will preserve their surfaces from atmospheric influence and decay—requires no preparation, and will dry in a few hours.—Sold in casks, 2 to 50 gallons. Brilliant black, 2s.; rich brown, 2s. 9d. per gall.
BELL, LEAR, & CO., 16, Basing-lane, Cheapside.

PATENT ALKALI COMPANY'S METALLIC PAINTS. COLOURS—BLACK AND PURPLE BROWN.
These paints (the products of a patent process), possess peculiar and valuable properties not otherwise attainable, and are perfectly free from the deleterious qualities of white-lead. They surpass all other paints ever yet discovered in point of DURABILITY and ECONOMY; two coats being more than equal to three of any other description. From their chemical composition, they are pre-eminently adapted for covering IRON; also STUCCOED or BRICK BUILDINGS, and every kind of WOOD WORK. The process by which the base of these paints is produced, makes it impossible that any change should take place in their composition from atmospheric influence. Their identity with iron secures them from galvanic action, so fatal to the durability of lead and other paints on iron work.
They have been exposed on SHIPPING to the action of sea water, and of the sulphuretted hydrogen so prevalent in sea ports and tidal harbours, for more than THREE YEARS, without change.
Their CHEAPNESS and STRENGTH render them peculiarly eligible for IRON BRIDGES, ROOFS, and RAILINGS, FARM BUILDINGS, and SHIPPING.
The attention of the SHIPPING INTEREST is particularly directed to the company's patent compound metallic BLACK PAINT (the only metallic black paint of any value in existence), which will be found to act as a most valuable preservative when applied to iron steam-boats, and wooden vessels. It also forms a beautiful covering for STOVES, and is susceptible of a high polish.
Several imitations of the Patent Alkali Company's paint having been sold under the name of IRON PAINT, the directors of the company deem it necessary to caution the public that no other iron paint is genuine, or partakes in any degree whatever of the properties of the company's paints, the base of the latter being obtained solely by a series of processes, which are protected by the company's patents, and to which alone is owing their extraordinary body, or covering power. Numerous and most satisfactory testimonials have been forwarded to the company's offices, copies of which may be had of the secretary or of the agents.
Price, by the *ton*, £25, delivered in London or Liverpool, exclusive of packages.
To be obtained exclusively on application to the secretary, Mr. J. A. West, at the offices of the company, 20, Fenchurch-street, London; or of any of the undermentioned parties, who are the only agents of the company:—
Messrs. Evans Brothers, London; Messrs. Matthews and Leonard, Bristol; Messrs. Evans and Hodgson, Exeter; Messrs. Clarke and Fill, Yarmouth, Norfolk; Mr. D. Sandeman, Glasgow; Mr. G. Sandeman, Dundee; Mr. R. Newby, Bradford, Yorkshire, Mr. R. S. Farr, Edinburgh; Mr. W. Bailey, Wolverhampton; Messrs. Vint and Co; Newcastle-on-Tyne, and Sunderland; Mr. Robert Oxland, Plymouth; Mr. Joshua Fox, Tregedna, near Falmouth.

SIR JAMES MURRAY'S FLUID CAMPHOR.—This cordial preparation is infinitely more *effectual* and *uniform* in its soothing and reviving influence than Camphor, *either in substance or suspended in temporary or mechanical mixtures.* This *permanent solution* is safe and agreeable to all; it raises the spirits, renovates the powers of life in low fevers, abates spasms, allays irritation of the stomach and nerves, and is the best vehicle for tonics and sedatives in diarrhœa dysentery. As a warm restorative it is invaluable; and is of use in sea-sickness, fainting, and bilious complaints.
This ORIGINAL FLUID CAMPHOR (containing 3 grains of camphor to the ounce) is sold by the sole consignee, Mr. William Bailey, of North-street, Wolverhampton, and all wholesale and retail druggists and medical agents throughout the British Empire, in bottles, at 1s., 2s., 4s., and 8s. each, with directions for use.
Also, Sir JAMES MURRAY'S FLUID MAGNESIA, in bottles, at 1s., 2s. 6d., 3s. 6d., 5s. 6d., 11s., and 21s. each.
The ACIDULATED SYRUP, in bottles, 2s. each.

DR. LOCOCK'S FEMALE WAFERS have no taste of medicine, and are the only remedy recommended to Females.—Price 1s. 1½d., 2s. 9d., and 11s. per box.—BEWARE OF IMITATIONS: Unprincipled persons counterfeit this medicine in the form of "pills," &c. Purchasers must, therefore, observe that none are genuine but "wafers," and that the words "Dr. Locock's Wafers," are in the stamp outside each box.—OBSERVE: Several of the counterfeit medicines have words on the stamp so nearly resembling these, as to mislead the unwary. Purchasers must, therefore, strictly observe the above caution.—AGENTS: Da Silva and Co., 1, Bride-lane, Fleet-street, London; sold by all medicine vendors, of whom also may be had Dr. Locock's "Pulmonic Wafers" for asthma, consumption, coughs, and colds.

LIST OF PRIZES FOR SESSION 1849-50.

THE ROYAL SCOTTISH SOCIETY OF ARTS proposes to AWARD PRIZES, of different values (none to exceed Thirty Sovereigns), in Gold or Silver Medals, Silver Plate, or Money, for approved Communications, relative to Inventions, Discoveries, and Improvements in the MECHANICAL and CHEMICAL ARTS in general, and also to means by which the NATURAL PRODUCTIONS of the country may be made MORE AVAILABLE; and in particular to—
I.—Inventions, Discoveries, or Improvements in the useful Arts, including the Mechanical and Chemical; and in the Mechanical Branch of the Fine Arts, such as the following—viz.:
1. MECHANICAL ARTS.
1. Methods of economising fuel, gas, &c.—of preparing superior fuel from peat—of preventing smoke and noxious vapours from manufactories—of warming and ventilating public edifices, private dwellings, &c.—of constructing economical and salubrious dwellings for the working classes, especially in towns—of filtering water in large quantities—of rendering large supplies of water available for the purpose of extinguishing fires, and the best application of manual or other power to the working of fire-engines—of constructing buildings on the most correct acoustic principles—of applying glass to new and useful purposes.
2. Inventions or Improvements in the manufacture of metals, simple or alloyed—in the manufacture of writing and printing paper—in gilding brass—in artificial pavement—in common or in electro-magnetic time-keepers—in screw-cutting—in printing presses—in stereotyping and type founding—in the composition of printers' rollers—in shipbuilding, with regard to ventilation, both for the crew and the timbers—in the manufacture of leather—in stationary and locomotive engines—in railway wheels and axles—in brakes for stopping the trains—in railway telegraphs and signals—in smith work and carpentry—in steel—in tools, implements, and apparatus for the various trades—in electric, voltaic, and magnetic apparatus.
2. CHEMICAL ARTS.
Improvements in fine glass for optical purposes, free from veins, and of a dense and transparent quality—in rendering glass hard and difficult of fusion for chemical purposes—in the annealing of glass—in the manufacture of common and copying writing inks—in the application of caoutchouc and gutta percha to new and useful purposes—in oil for fine machinery, clocks, and watches.
3. RELATIVE TO THE FINE ARTS.
Improvements in patterns of porcelain, common clay, or metal, of domestic articles of simple and beautiful forms, without much ornament, and of one colour—in glass staining—in the preparation of lime and plaster for fresco painting, and in appropriate tools for laying the plaster with precision—in engraving on stone—in Daguerreotype, Talbotype, or other photographic processes—in applying such processes to stone, for lithographic printing—in Electrotype processes—in the production of white or neutral artificial light by means adapted to ordinary use—in die-sinking—in wood-cutting, and other methods of illustrating books to be printed with the letter-press—in printing from woodcuts, &c.—in ornamental metallic casting.
II.—Experiments applicable to the Useful Arts.
III.—Notices of Processes in the Useful Arts practised in this country, but not generally known.
IV.—Inventions, Processes, or Practices from Foreign Countries, not generally known or adopted in this country.
V.—Practical Details of Public or other Undertakings of National Importance, not previously published.
VI.—Discovery of Substitutes for Hemp and Flax, &c.
The Society also proposes to AWARD the KEITH PRIZE, value Thirty Sovereigns, for some important "Invention, Improvement, or Discovery, in the Useful Arts, which shall be primarily submitted to the Society," betwixt and 1st April, 1850.

GENERAL OBSERVATIONS.
The communications and the descriptions of the various inventions, &c., to be *full* and *distinct*, and to be written on *foolscap* paper, leaving margins at least one inch broad, on *both the outer and inner sides of the writing*, so as to allow of their being bound up in volumes; and, when necessary, to be accompanied by *specimens, drawings*, or *models*. All drawings to be on *imperial* drawing paper, unless a larger sheet be requisite. The drawings to be in *bold* lines, not less than an eighth of an inch thick, or *strongly coloured*, so as to be easily seen at about the distance of 20 feet when hung up in the hall of meeting, and the letters, or figures, of reference to be at least ½ inch long.
The Society to be at liberty to publish in their *Transactions* copies, or abstracts, of all papers submitted to them. All models, drawings, &c., for which prizes shall be given, to be held to be the property of the Society; the value of the model, &c., being taken into account in fixing the amount of the prize.
Communications, models, &c., are to be addressed to James Tod, Esq., the Secretary, 55, Great King-street, Edinburgh, postage or carriage paid; and they are expected to be lodged *on or before 1st October*, 1849, in order to ensure their being read and reported on during the session—the ordinary meetings of which end in April, 1850; but those *which cannot be lodged earlier*, will be received up to 1st March, 1850.
By order of the Society,
Edinburgh, April 9, 1849. JAMES TOD, Secretary.
*** Copies of this List of Prizes may be had from the Secretary.

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